Proceedings from the

**FIFTH**

**INFORMATION SYSTEMS**
**TECHNOLOGY CONFERENCE**

Fredericton, N. B.

**MAY 18-19, 1988**

**INFORMATION SYSTEMS TECHNOLOGY CONFERENCE**

FREDERICTON INN MAY 18-19, 1988

---

**TABLE OF CONTENTS**


**DAY ONE**

| | | |
|---|---|---|
| INTRODUCTION TO THE CONFERENCE | by | Jean-Claude Haché, Chairman, Organizing Committee |
| EXECUTIVE COMMENTARY | by | Max C. Lewis, Supply & Services |
| DEPARTMENTAL COMMUNICATIONS NETWORK | by | Stuart Oulton, Labour |
| INFORMATION PROCESSING AT N.B. POWER | by | Dennis Savoie<br>David Reid |

**DAY TWO**

| | | |
|---|---|---|
| OPTICAL DISC SYSTEMS AND APPLICATIONS | by | Daryl Hunter, LRIS |
| INTEGRATED RADIO COMMUNICATION SYSTEM | by | John Palmer, Transportation |
| AUTOMATED PURCHASING SYSTEM | by | Jerrie Fowler, Supply & Services |
| WORKPLACE SYNERGY - Tools and People | by | Judith Hurwitz, Patricia Seybold's Office Computing |

**APPENDICES :**

CONFERENCE AGENDA
DEPARTMENTAL I.S. COORDINATORS
I.S.D. ORGANIZATION CHART
I.S.D. CLIENT REPRESENTATIVES
CONFERENCE DEMOS
MENU
QUESTIONNAIRE



*Organizing Committee* : Paul Meyer, Labour
Yves Godbout, Office of the Auditor General
Jean-Claude Haché, Health and Community Services
André Gauthier, I.S.D., Supply and Services

**INFORMATION SYSTEM TECHNOLOGY CONFERENCE**

**MAY 18-19, 1988**

# WELCOME

**BY**

JEAN-CLAUDE HACHÉ
*Director, Information Systems*
*Department of Health and Community Services*

To all participants:

On behalf of the planning commitee and the Information Systems Division of Supply and Services, welcome to the fifth Information Technology Conference of the Government of New Brunswick.

For some years now, Supply and Services has sponsored and coordinated this conference to promote the dissemination of information systems technology across all departments and to create an opportunity to exchange ideas within the Government.

The central theme of this Conference is *Information Technology Today*. The demos and presentations will focus on current trends and applications of technology. We believe this conference will enhance all departments' understanding of technologies and applications in place now.

Thank you for your support and participation.

Jean-Claude Haché,
Chaiman,
Planning Committee

Aux participant(e)s :

Au nom du comité organisateur et de la Division systèmes informatiques du ministère de l'Approvisionnement et des Services, je vous souhaite la bienvenue à la cinquième Conférence sur l'information technologique du gouvernement du Nouveau-Brunswick.

Depuis quelques années déjà, le ministère parraine et coordonne cette conférence dans le but de promouvoir la propagation de connaissances en technologie informatique et de créer une ambiance propice à l'échange d'idées au sein du gouvernement.

Cette conférence porte sur *Les Technologies d'Aujourdhui*. Les démos et présentations accentueront les méthodes et applications technologiques courantes. Nous croyons que cette conférence aidera tous les ministères à mieux comprendre la technologie et les applications en vigueur présentement.

Merci de votre support et de votre participation.

Jean-Claude Haché
Président
Comité organisateur

**INFORMATION SYSTEM TECHNOLOGY CONFERENCE**

MAY 18-19, 1988

# EXECUTIVE COMMENTARY

BY

MAX C. LEWIS
*Deputy Minister*
*Department of Supply and Services*

INFORMATION TECHNOLOGY CONFERENCE
MAY 18, 1988

# EXECUTIVE COMMENTARY

Max C. Lewis
Deputy Minister, Supply and Services

The Department of Supply and Services is pleased to be hosting this conference, and I want to specifically thank the organizers, as well as those making presentations and providing demonstrations.

It is my view that while much work has been done on numerous occasions toward developing an appropriate Corporate Technology Strategy, today's excellent turnout indicates a high degree of interest in Information System Technology. The timing is obviously right and it may in fact be our last opportunity to develop a corporate technology strategy in an orderly, structured way.

In order for the strategy to be successful, it must be understood and supported by a significant portion of the senior management group and, in that respect, today's turnout is indeed encouraging.

To those directly involved in Information Systems, the challenge is to cultivate understanding and support among senior management, particularly related to the delivery of service.

The Information Systems Division is committed to improving *customer* relations, more *customer* interaction, and aggressive support for the development of Corporate Technology Strategy.

INFORMATION SYSTEM TECHNOLOGY CONFERENCE

MAY 18-19, 1988

# DEPARTMENTAL COMMUNICATION NETWORK

BY

STUART OULTON
*Director, Information Planning & Processing*
*Department of Labour*

NB GOVERNMENT INFORMATION TECHNOLOGY CONFERENCE
MAY 1988

# A DEPARTMENTAL COMMUNICATIONS NETWORK

Determining what to establish as a departmental network is not unlike undertaking a major data processing project, in that it is essential to define at the outset, exactly what needs to be accomplished.

For example, if all one needs to do is share a laser printer with 4 or 5 PC's, a $1,200 *"buffer box"* may do the job better than a more complicated (L)ocal (A)rea (N)etwork, which would cost perhaps $5-6,000 at $1,000 per station. Similarly, sharing files within a work group may be simpler on a small departmental mini, where an automated file transfer approach is used, as compared to LAN's where much the same *"system administration"* overhead and special cabling is required.

None of the above should be interpreted as speaking against the appropriateness or functionality of LAN's - in fact the author is strongly of the opinion that they are the evolving technology of choice. At present however, while they may initially appear to be far less costly than departmental computer based solutions, one may experience some nasty surprises along the way to growing beyond that initial small work group. A case in point. It generally is accepted that even today, a reliable LAN configuration will cost $1,000 per connection. At 5 devices, $5,000 is affordable. But what happens when you need to establish connections for 50 users? The cost will now reach $50,000 if the same technology is used, and performance will be unacceptable if it is even possible to establish that many connections.

Of course, one could break that group of 50 users up into several smaller groups, but then one must find a mechanism to *"bridge"* between them, since the printer you will want to use, or the file that you want to use will inevitably be on the *"other network"*. Now there are 2 levels of technical complications and administrative necessities - the lower level basic LAN and the series of "bridges" that join them together.

What about accessing other computers, such as the government's UNISYS or IBM mainframes, a departmental system, or any of a variety of information sources such as bulletin boards, STATS CANADA, ENVOY, the FINANCIAL POST Online, etc etc. Again, this can be accomplished, but the related costs and technical difficulties may be far greater than one would have imagined.

These were the types of concerns that we were faced with some time back. Although we couldn't afford the initial start-up costs anymore that anyone else, it appeared that network connections that would cost in the $1-200 range made much more sense than the $1,000 range, and that we would approach the level of 100 or more connections relatively quickly *(in fact, we currently have approximately 300)*. Our experience has been that while one may say *"we don't really need to do that"*, users will generally find that they do want to do "it" *(whatever the 'it' is)* before too long.

## ADDITIONAL NETWORKING ADVANTAGES

A secondary advantage of switching connections to even one CPU resource is the fact that it is possible to concentrate incoming devices - what this means is that it is possible to have say 50 terminals connected to a switching device and have any of them, up to say a maximum of 32, connected to the CPU resource. Not all connected at the same time, but if they don't all have to be, then the fewer number of *"ports"* on the computer can adequately serve this much larger number of terminal/micro users. As well, even if the cost of ports is not prohibitive, most systems have a maximum number than can be physically attached - if you hit that maximum, you have to buy a larger system, or do without.

Consider too, that on most departmental computers printers are connected to those same *"ports"*, effectively reducing the number available for terminals. Sometimes, printers can be attached to a terminal, but this usually means that only that terminal can make use of the printer, rather than anyone who needs to print from anywhere on the system. The department of Labour has about a dozen printers distributed throughout a three story building, but only 4 ports on the departmental computer are designated as printers ports - with a little ingenuity it was possible to utilize the switch to connect one of those 4 to the desired printer, print the document, and then free that port up to be used for an other printer when required. The only limitation to this approach is that only 4 printers can be running at a time, but since the laserjet printers print so quickly, and the office type documents that are printed are relatively short, there seldom is ever a backup.

As can be seen on the accompanying diagram, all such printers are available for use from any of the mini-computers owned by the department, as well as any micros that users have. We have also begun to print PC documents via the smaller mini's, since this is much simpler for the majority of people. This is becoming cost effective since the task is effectively handled by the older, smaller CPU's. In fact we were somewhat shocked to determine that for the service contract cost of maintaining the 2 smaller systems for 1 year, we could actually purchase a third system. Needless to say, we have done so, and now have immediate backup services should any of the 3 primary systems fail - you can't beat that for response time.

## SHARED PRINTERS - WRONG FORMS

Even though users had the ability to dedicate their word-processing printers to a particular work station *(referred to as a "slaved" printer)*, without exception, the request was to be able to share them with others in the area *(referred to as "spooled")*. This worked well, until everyone wanted to print their document(s) on department of Labour letterhead, the government's memo form, or even a special form developed by a particular branch. This was somewhat of a nightmare, since it necessitated asking the person next to the printer to *"handfeed"* the required form, which they soon began objecting too, and still didn't assure that the correct document would appear on the correct form. This was caused by the fact that someone might print something from their micro to that printer after the memo form was placed in the printer but before the document reached the printer.

This dilemma was resolved by actually printing the special form *(in black only)* onto the same blank page as the required text. Although this approach required downloading the form into the printer once, it did not impose any delays in getting the required material printed, as the forms are NOT removed after being printed. The concept has been widely accepted throughout the department and is now the standard manner of preparing documents. We are now able to include both the Minister and Deputy Minister's names on the departmental letterhead as there is no large quantity of forms that have to be preprinted. *(Sample copies of some of the forms are attached at the end of this document).*

It may be of interest to note that only those printers that are used for full scale desktop publishing have any more than the standard amount memory - additional capacity is not required despite downloading a dozen or more fonts and another dozen or so special forms. Given the speed and quality that is possible, as well as the low noise levels, and built-in automatic paper feeding, all of which are above and beyond the capabilities and advantages already mentioned, it is easy to understand why we enthusiastically recommend this technology to others *(the current government tender price is about $2,600)*.

## OTHER USES OF SWITCHING

Do you have problems remembering to backup your own PC, or getting other users to do so. A very common issue, that usually is answered with *"yes, in fact we don't do it"*. Like everyone, we knew this was needed, but didn't want to spend money on extra backup devices and knew that it wouldn't get much support from the users. This has been solved however, by using a *"script"* file written for our terminal emulation software, that causes the PC to automatically log onto the departmental computer in the middle of the night, and copy any changed files up to the mainframe. These copies are then backed up to tape as part of the regular system backups - no extra cost for networking, backup equipment or backup media, no extra work for the users *(other than typing backup when they leave work for the day)*, and no response time problems for anyone since it is done in the middle of the night.

There isn't a specific need for switching in this environment, but it does allow users who don't have any need for tying up a port on the CPU all day long, to have access at the off peak times to do their backups. The advantage of switching however, is that should the normal CPU not be available for any reason, we can change the location of the *"requested service"* which will cause the midnight PC's to end up on an other system - this is very similar in concept to having your telephone *"call forwarded"* to an other answering station.

## THE UNIVERSAL WORKSTATION

As the *"information age"* advances, and as our need to access more and more external resources becomes more apparent, the need for the so called *"universal workstation"* takes on greater and greater importance. Aside from the obvious need to access both the IBM and UNISYS mainframes, many will have a need to access other departmental systems. Once these capabilities are established, somewhat unanticipated opportunities may present themselves. One such example in Labour was encountered when our Employment Development Branch decided that it would like to go *"online"* for credit checks of potential grant recipients. Once this decision was reached,

the first reaction was to get a terminal and line to the national system in Montreal. In the end, using the existing DATAPAC access and from any terminal in the department, it was possible to connect to the computer in Montreal and obtained the required information.

An interesting sidelight to this project was the use of *"script files"* to ease the use of the Montreal system. This approach was undertaken initially to facilitate accessing the system, and replying to the prompts for what information the user was seeking. Since this was all done in a format and manner that was *"foreign"* to our users, logging on to the system and getting this information was completely automated and executed from a PC. The secondary advantage to this approach was that while the host system in Montreal would still *"edit"* the request, it was never found to be in error since all of the required edits were performed by the PC here in Fredericton before the request was transmitted to the host. This had the obvious advantage of eliminating DATAPAC charges since no extra traffic was generated when requests were entered in error and had to be reprompted.

We also have some users that use the DATAPAC access to connect to ENVOY enabling them to receive the provincial labour force statistics directly from Stats Canada in the most timely manner possible. A recent demo of the FINANCIAL POST ONLINE service also highlighted the ability of anyone with a workstation anywhere in the city that is connected to the switch to access this service directly from their desk. Because we felt that we were not getting important technical information as fast as desired, we have established ourselves on several Bulletin Boards throughout North America and are able to get help from an *"ARMY"* of other users for only pennies. Again, this capability is accessible to everyone equally.

## MORE PRESSURE FOR PORTS

With the extension of full office automation throughout the department *(not only electronic mail, but also electronic central filing etc)*, the need for more and more ports has continued. Although a dataswitch provided the opportunity to request users to log on and off the system periodically, and hence provide service in *"shifts"*, it isn't particularly desirable from the users perspective.

They would like to get on, and stay on until the work day is finished. Since the areas that would use the equipment most were the first to get terminals/micros and gain access, the most recent users are relatively low traffic generators. This situation of large numbers of terminals but low traffic levels resulted in a new method of taking those users into the computer - namely X.25. By simply adding a board into the switch and one into the computer, it is possible to take up to 100 terminals into the computer over a single cable. Since the distance is physically very short it is possible to run this connection at very high speeds allowing up to 10 users at once before any interference is noticed, and then only if they tried to transmit at exactly the same time. In actual usage we expect to run at least 35 without anyone recognizing that someone else is sharing the line. If these users were very active, the sharing would be more noticeable, but not in the situation that exists. Since this connection is run through exactly the same switch as the rest, it is also possible to connect to the computer as before, or to use one method then the other as appropriate.

## BUT I WANT TO WORK STANDALONE

Being networked doesn't mean being forced to use the additional resources that are now available to you. In fact the best of both worlds is to use a PC for those things that it does best *(micro CPU seconds are much less expensive that mainframe or mini cpu seconds)* such as word-processing, graphics, spreadsheets, statistical analysis and the like. However, since few of us actually work in isolation from others for very long, networking the systems together allows one to share their work with others as needed once it is completed.

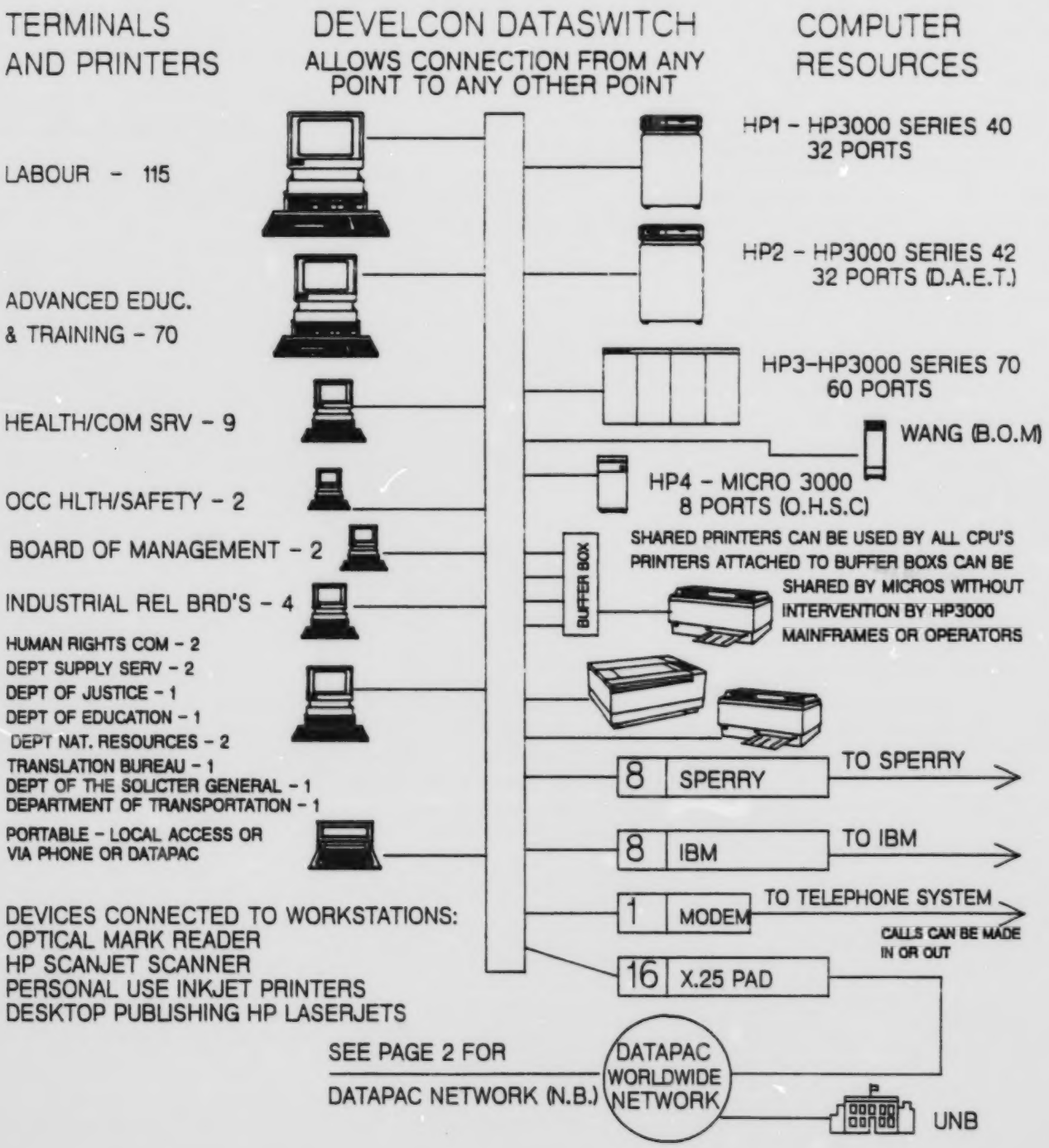
The biggest complaint with using PC's this way is the complexity usually associated with moving documents back and forth between the Mini and PC. To assist this process we utilize a terminal emulation program that provides two very useful features 1. script files, which as previously discussed, allows us to command the micro to perform certain repetitive functions automatically without actually having to type in the commands each time, and 2. *"hot keying"* between the terminal emulation/file transfer program and a major package such as WordPerfect.

When these are combined with script files within the Mini computers electronic mail system, the user can transmit a document from their PC to an other user simply by answering the required questions. While the material is being transmitted *(either up or down)* the user can *"hotkey"* back to WordPerfect and begin working on an other document without having to worry about interfering with the background transfer. It is also possible for users who are working in WordPerfect to be notified on the screen when new mail has been received, even while they are working on composing their next document. The above has described these features in relation to using WordPerfect, since it is the most common application using this approach, although the functionality is available with virtually all of the most popular micro software packages.

## CONCLUSION

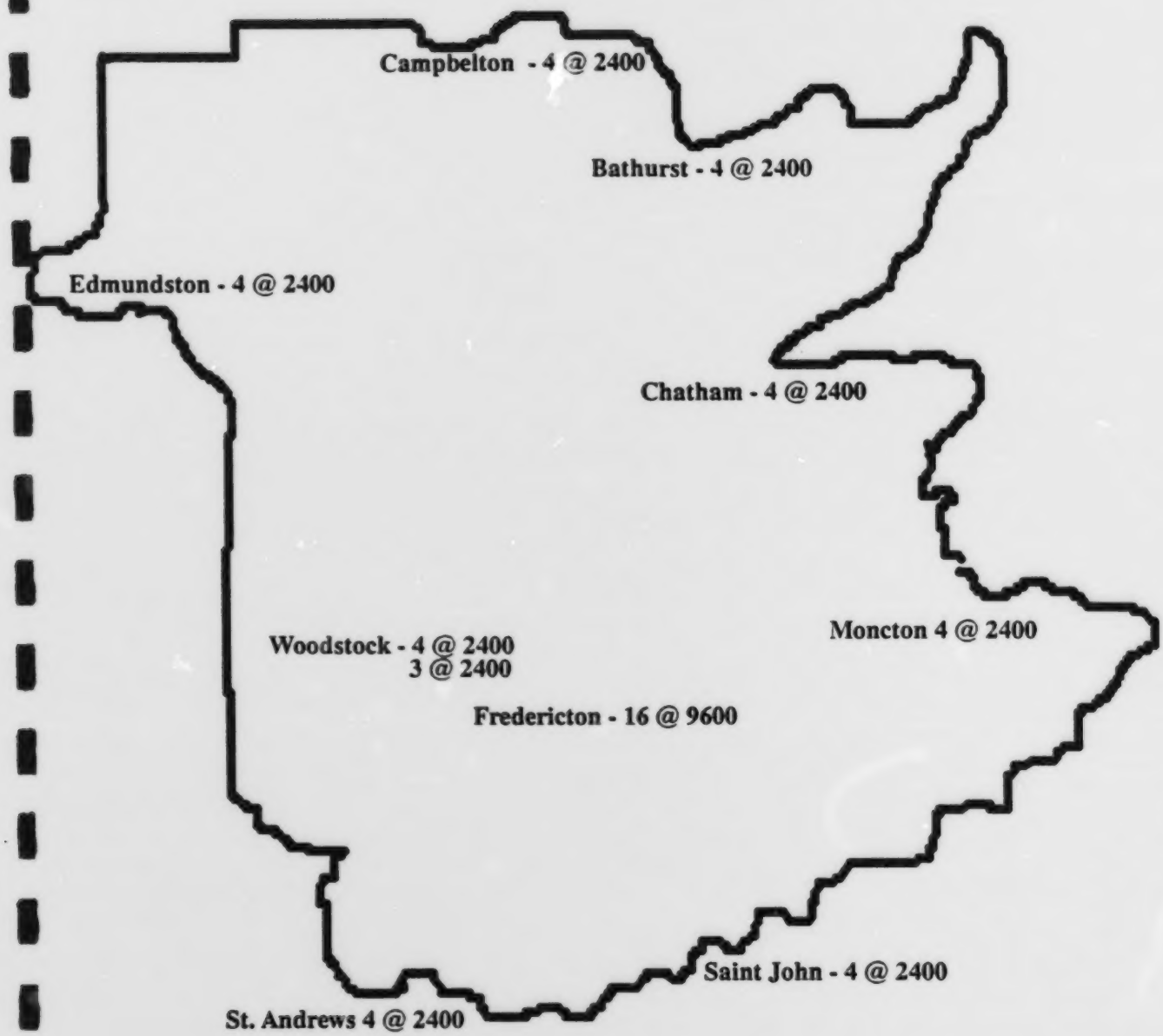
No simple answers! In fact the biggest problem is generally not that something can't be done, but rather which of many possibilities is right for your group. While it doesn't seem important at first, probably the most significant outcome of our experience to date is that users will eventually want to be able to connect to anything and everything that exists!

# DEPARTMENT OF LABOUR
# SYSTEM NETWORK - 15 MAY 1988


TERMINALS AND PRINTERS
DEVELCON DATASWITCH
ALLOWS CONNECTION FROM ANY POINT TO ANY OTHER POINT
COMPUTER RESOURCES
LABOUR - 115
ADVANCED EDUC. & TRAINING - 70
HEALTH/COM SRV - 9
OCC HLTH/SAFETY - 2
BOARD OF MANAGEMENT - 2
INDUSTRIAL REL BRD'S - 4
HUMAN RIGHTS COM - 2
DEPT SUPPLY SERV - 2
DEPT OF JUSTICE - 1
DEPT OF EDUCATION - 1
DEPT NAT. RESOURCES - 2
TRANSLATION BUREAU - 1
DEPT OF THE SOLICTER GENERAL - 1
DEPARTMENT OF TRANSPORTATION - 1
PORTABLE - LOCAL ACCESS OR VIA PHONE OR DATAPAC
DEVICES CONNECTED TO WORKSTATIONS:
OPTICAL MARK READER
HP SCANJET SCANNER
PERSONAL USE INKJET PRINTERS
DESKTOP PUBLISHING HP LASERJETS
HP1 - HP3000 SERIES 40
32 PORTS
HP2 - HP3000 SERIES 42
32 PORTS (D.A.E.T.)
HP3-HP3000 SERIES 70
60 PORTS
WANG (B.O.M)
HP4 - MICRO 3000
8 PORTS (O.H.S.C)
BUFFER BOX
SHARED PRINTERS CAN BE USED BY ALL CPU'S
PRINTERS ATTACHED TO BUFFER BOXS CAN BE SHARED BY MICROS WITHOUT INTERVENTION BY HP3000 MAINFRAMES OR OPERATORS
8 SPERRY
TO SPERRY
8 IBM
TO IBM
1 MODEM
TO TELEPHONE SYSTEM
CALLS CAN BE MADE IN OR OUT
16 X.25 PAD
SEE PAGE 2 FOR DATAPAC NETWORK (N.B.)
DATAPAC WORLDWIDE NETWORK
UNB

# LABOUR/AET DATAPAC NETWORK

## May 1988


Campbelton - 4 @ 2400
Bathurst - 4 @ 2400
Edmundston - 4 @ 2400
Chatham - 4 @ 2400
Moncton 4 @ 2400
Woodstock - 4 @ 2400
3 @ 2400
Fredericton - 16 @ 9600
Saint John - 4 @ 2400
St. Andrews 4 @ 2400

INFORMATION SYSTEM TECHNOLOGY CONFERENCE

MAY 18-19, 1988

# INTRODUCTION TO INFORMATION PROCESSING AT N.B. POWER

BY

DENNIS SAVOIE
*Vice-President, Distribution Operations*
*N. B. Power - Énergie N. B.*

GOOD AFTERNOON LADIES AND GENTLEMEN, MY NAME IS DENNIS SAVOIE. I AM VICE-PRESIDENT OF DISTRIBUTION OPERATIONS AT NB POWER. I WOULD LIKE TO THANK THE ORGANIZERS OF THIS SESSION FOR INVITING US HERE TODAY. I HOPE THAT YOU WILL FIND OUR PRESENTATIONS BOTH INTERESTING AND INFORMATIVE.

BEFORE I ASK DAVE REID, MANAGER OF COMPUTER SERVICES, TO PRESENT TO YOU OUR DIFFERENT INFORMATION SYSTEMS THAT WE HAVE AT NB POWER. I THOUGHT IT WOULD BE WORTHWHILE TO PUT THINGS IN PERSPECTIVE FROM A USER POINT OF VIEW AND OUR RELATIONSHIP WITH THE INFORMATION SYSTEM DIVISION.

THE DISTRIBUTION OPERATIONS DIVISION IS RESPONSIBLE FOR THE SERVICE TO NB POWER IN PROVINCE CUSTOMERS. WE HAVE APPROXIMATELY 250,000 CUSTOMERS AND WE HAVE 720 EMPLOYEES LOCATED THROUGHOUT THE PROVINCE IN 12 DISTRICTS.

IN 1984, FROM AN ORGANIZATION POINT OF VIEW, WE WENT FROM A STRONG CENTRALIZED ORGANIZATION TO A DECENTRALIZED ORGANIZATION. THE MANDATE, AT THE TIME AND IT'S STILL APPLICABLE TODAY, WAS TO DECENTRALIZE THE CONTROL OF CUSTOMER SERVICE, INCREASE THE SPAN OF CONTROL FOR OUR SUPERVISORS AND REDUCE ORGANIZATIONAL LEVELS BETWEEN OUR PRESIDENT AND FIELD STAFF.

THE SPAN OF CONTROL FOR OUR SUPERVISORS WAS INCREASED TO BETWEEN 10 AND 20. EXAMPLE: IN 1984, FOUR (4) REGIONAL MANAGERS AND ONE HEAD MANAGER REPORT THE VICE-PRESIDENT DISTRIBUTION OPERATIONS. SINCE 1984, THAT HAS INCREASED TO 19, WHICH INCLUDES 12 DISTRICT MANAGERS.

IN DECENTRALIZING THE CONTROL AND RESPONSIBILITY FOR CUSTOMER SERVICE, WE SET THREE MAJOR OBJECTIVES:

1) PROFESSIONALIZE CUSTOMER SERVICE

2) EMPLOYEE ACCOUNTABILITY

3) MAXIMUM UTILIZATION OF OUR RESOURCES

IN ORDER TO ACHIEVE THESE OBJECTIVES, WE NEED QUICK UP-TO-DATE INFORMATION AND THIS IS WHERE I.S.D. COMES IN. THEY HAVE BEEN ABLE, AND YOU WILL SEE IT IN MORE DETAILS IN DAVE'S PRESENTATION AND THE DEMONSTRATION THAT WE HAVE SET UP, THEY HAVE BEEN ABLE TO SUPPORT US WITH OUR NEEDS. I EMPHASIZE OUR NEEDS, WE HAVE THE MANDATE TO SERVE THE CUSTOMER AND I.S.D'S MANDATE IS TO MEET OUR NEEDS AND I MUST SAY THAT THEY HAVE DONE A SUPER JOB IN MEETING OUR NEEDS. IT HAS NOT ALWAYS BEEN ROSY, BUT TOGETHER WE HAVE ACCOMPLISHED SOME MAJOR PROJECTS.

THERE ARE A FEW FACTORS THAT CONTRIBUTED TO OUR SUCCESS. I WOULD LIKE TO MENTION TWO OR THREE. THE FIRST IS COMMITMENT - TOTAL COMMITMENT FROM ALL LEVEL OF MANAGEMENT IN OUR ORGANIZATION, FROM OUR EXECUTIVE TO OUR FIELD MANAGERS, WE HAVE HAD TOTAL COMMITMENT FOR THE DEVELOPMENT AND IMPLEMENTATION OF EVERY SYSTEM.

THE SECOND FACTOR IS OUR INVOLVEMENT, THAT IS USER INVOLVEMENT, ONCE OUR NEEDS ARE IDENTIFIED FROM THE CONCEPTUAL BEGINNING TO THE FINAL IMPLEMENTATION THE USER IS DIRECTLY IN CHARGE. EXAMPLE: OUR WORK PLANNING & SCHEDULING SYSTEM WAS DESIGNED IN-HOUSE UNDER THE DIRECTION OF A STEERING COMMITTEE HEADED BY A USER, IN THIS CASE MYSELF, AND THE PROJECT MANAGER IS A FIELD SUPERVISION ASSIGNED TO THE PROJECT AT THE BEGINNING IN 1985. THIS PROJECT WILL BE COMPLETED IN FALL OF THIS YEAR.

THE THIRD FACTOR IS THE RELATIONSHIP THAT THE USER HAS WITH THE I.S.D. STAFF. IN OUR CASE, WE ARE LUCKY WE HAVE AN EXCELLENT WORKING RELATIONSHIP WITH THE STAFF OF INFORMATION SYSTEM. THEY ARE COMMITTED TO MEET OUR NEEDS BASED ON OUR REQUIREMENT, OUR BUDGETS AND OUR TIME FRAME. I DON'T HAVE TOO MANY OPPORTUNITIES TO PUBLICLY ACKNOWLEDGE THE CONTRIBUTION MADE BY OUR I.S.D. STAFF AND YOU HAVE ALLOWED ME TO TAKE THE OPPORTUNITY TODAY.

A REMINDER BEFORE I ASK DAVE TO COME UP; TO KEEP IN MIND OUR OBJECTIVES AS DAVE GOES THROUGH HIS PRESENTATION, AND THEY ARE:

1) PROFESSIONALIZE OUR CUSTOMER SERVICE

2) EMPLOYEE ACCOUNTABILITY

3) MAXIMUM UTILIZATION OF OUR RESOURCE

THESE OBJECTIVES, WITH THE SUPPORT OF GOOD INFORMATION SYSTEM, WILL HELP US MAKE EACH OF OUR DISTRICTS SELF-SUFFICIENT IN PROVIDING SERVICE TO OUR CUSTOMERS.

AGAIN, THANK YOU FOR THE INVITATION AND I WOULD INVITE YOU TO SEE OUR DEMONSTRATION EITHER TODAY OR TOMORROW. WE HAVE COMPETENT STAFF ON LOCATION TO ANSWER ANY QUESTIONS YOU MAY HAVE.

I WOULD LIKE TO INTRODUCE TO YOU DAVE REID, MANAGER OF COMPUTER SERVICE, WHO WILL MAKE A PRESENTATION ON THE DIFFERENT SYSTEMS THAT WE HAVE HAD AT NB POWER.

INFORMATION SYSTEM TECHNOLOGY CONFERENCE

MAY 18-19, 1988

# INFORMATION PROCESSING AT N.B. POWER

BY

DAVID REID
*Manager, Computer Services*
*N. B. Power - Énergie N. B.*

# NB POWER PRESENTATION
# TEXT
# May 18, 1988

## PURPOSE

The purpose of this presentation is to demonstrate the use of Information Processing to meet the needs of the operating divisions, such as Distribution Operations in meeting their objectives.

## ORGANIZATION

To meet this responsibility, the Information Systems Division has been organized to provide computing capacity, through its Computer Services department, support for the PC users in the Information Center and to support the operating divisions as clients. The Client Services departments, maintain an expertise in the application areas and more importantly understand the objectives of the client. Another responsibility of the ISD client areas is to look after the clients requirements in other application areas within ISD. To demonstrate the use of Information Processing at NB Power I will concentrate on the systems developed for the Distribution Operations Division.

## DISTRIBUTION OPERATING DIVISION

This division is responsible for the Electrical service to all NB Power customers. This requires the planning, construction and operations of the electrical network serving all New Brunswick Customers.

In supporting these functions, application systems are required that meet the basic objectives of the client divisions. That is all systems must be designed to improve both the level and consistency of our service to the customer. Because service is provided through 12 district locations throughout the province, consistency can be maintained by applying a standard work practice through applications, in dealing with our customers. A second objective of the applications is to improve productivity. Throughout this presentation, I will attempt to show how the systems which have been developed meet these objectives.

## SYSTEM DEVELOPMENT STRATEGY

NB Power's System Development strategy is to design and implement applications integrated through the use of a central database. Our objective is to tailor the end user interface to the application.

In Distribution Operations case...the facilities database provides the integration for the four major applications which support the functions provided to the customer. These applications are the Customer Information System, Service Restoration Systems, Work Planning and Scheduling System and the Engineering Analysis System. I will deal with each one in more detail. Also, these systems are on display in the demo area.

**FACILITIES DATABASE**

The Facilities database contains information needed to plan, operate and construct the Distribution network. A substantial amount of information is needed to represent the 250,000 customers, 400,000 poles and numerous pieces of equipment including attributes such as manufacturer, model, ratings and so on.

This database allows the applications to locate our customers and associate them to the electrical facilities. For this purpose all households are assigned a premise number which does not change with a new occupant. These premises are then associated with a meter, which is associated to a pole, which is associated with a line section. This connectivity of components provides a means of locating customers to the electrical network.

**SERVICE RESTORATION SYSTEM**

The Service Restoration System supports the Distribution System Operations by identifying and tracking the restoration of electrical service to our customer. This system makes major use of the facilities information in first locating the customer and secondly, identifying the most likely point of failure within the network. Before this system was developed, when a rural customer reported an interruption we had a problem knowing where his house was. Now we can identify the pole his service is connected to. This information has enabled us to restore power to the customer more quickly.

As trouble calls are processed, they are analyzed by the system and associated with an interruption. The Distribution System Operator deals with the interruption trouble call. The system provides the operator with information on internal and external resources, continuous update of the number of customers affected by the interruption and highlighted information on the priority customers, for example hospitals or individuals on life support systems that are without power. This information allows the operator to prioritize the interruptions so as to meet the critical needs of our customers.

Once the interruption has been completed and service is restored, analysis helps to identify follow-up work which is required to prevent future trouble. Also, based on trends we can identify equipment which is causing us trouble - allowing us to do preventive maintenance on the equipment.

Through the use of toll free telephone numbers, our customers all over the province report power troubles to a central facility in Marysville which operates 24 hours each day. Pictured here is our new operating facility which will be completed this fall. From this facility, Distribution System Operators assign all the restoration work to crews in the areas affected. In order to do this, we need the capability to receive concurrent calls from all around the Province and access to the information on all crews to allow the work to be assigned.

All calls are received by a clerk at the Center who enters every trouble call into the Service Restoration System.

The preferred method of identifying the customer is with a phone number. We have found that 90% of the time the phone number is sufficient, however, in other cases we can use the name or service address of the customer. The trouble call can also be entered, even though the caller is not a customer. At this point we know exactly where the customer is located.

Once the customer is identified, information associated with the customer including service address, facilities information (pole, line section) and priority information (in this case dialysis patient in the home) is displayed. We can also see that this is the first interruption on this line. Up to this point has taken the clerk 30 seconds from the customer call. Subsequent calls for the same interruption can be handled in less than 10 seconds. This system greatly increased the number of calls which we can handle.

The Center has an operating theater which consists of 5 consoles that can support 5 system operators.

Depending on the time of day and the number of interruptions, from one to five operators can be directing restoration activity or operating the System.

Each of the consoles are equipped with a four panel terminal and a mobile communications system. The communications system is used to communicate with the crews in the vehicles and to external agencies like NB Tel as required.

Now back to our trouble call, the system operator is notified of the interruption on his terminal. This terminal display is broken into four screen areas. The top left hand screen is a summary of all the current interruptions throughout the Province. The asterisks on the right indicate priority customers are affected. This screen is updated every 30 seconds. The top right screen is used by the operator to update the status of the interruption, the bottom right screen shows detailed information on new interruptions. The last screen is used to access resource lists which are needed during the restoration process.

**CUSTOMER INFORMATION SYSTEM**

The Customer Information System supports our day to day dealings with the customer. All requests from the customer for service are entered into the system, and based on past history the customer is given a date when we will commit to having the service completed. This commitment to the customer is a further improvement in our service.

Customers make inquiries on such things as their bill, the amount of electricity consumed and the status of previous service requests. The system provides our Customer Service staff with up-to-date information in all these areas. Since this information is readily available, less time is now required in answering customer requests.

Based on customer payment history, credit staff make payment arrangements with our customers. These arrangements are entered and tracked by the System. The Credit staff is kept informed of the progress of customer payments. Not meeting the arrangement results in further collection activities.

Another area where substantial improvements in customer service and productivity have been made is in meter reading. A microprocessor meter data collection system was installed. Prior to this system we estimated about one quarter of our meter readings. With this system we are reading all our meters. In addition, this system has allowed us to reduce the time taken to get bills out to our customers.

Here we have a Meter Reader using the hand held unit. This unit contains information regarding his route which is sent from the mainframe computer on a daily basis. This information allows the reading to be edited for reasonability right at the meter, thus reducing customer complaints on bills because of erroneous readings. This system is also on display in the demo area.

**WORK PLANNING AND SCHEDULING SYSTEM**

All work performed by the crews in the Districts is planned and scheduled through the Work Planning and Scheduling System. By using a work breakdown structure, the work can be controlled and managed at whatever level is required - from the work order to the work detail of installing a pole. The use of standard engineering units, which represent the material, labour and vehicle requirements for defining the work ensures a consistent definition of work throughout the province.

Using the Standard Engineering units to define the detailed work requirements identifies the resources - material, labour, vehicle - needed to complete the work. From this information the job costs can be estimated and approval acquired to do the work. Computer estimating of jobs has improved the productivity of the Engineering staff in the districts and improved the accuracy and consistency of the estimates.

Because of the variety of work done by the crews, each work order is classified as to whether it is customer service, maintenance, or whatever. These classes are further broken into types of work such as new customer service requests, upgrade customer service requests, planned maintenance, unplanned maintenance for example. Based on this categorization, tailored work plans can be associated with the order that identify the steps required to complete the work and who has do perform the steps.

With the resource requirements of the work identified, the Work Planning Supervisor can schedule the work based on crew availability to meet the commitments made to our customers.

A typical request for a new service from a customer involves anywhere from five to ten people to complete the request. For instance, the Customer Service Clerk who takes the call, the Customer Service Man who defines the work requirements, the work planner who schedules the work, the storeman who assembles the material to name a few. To co-ordinate these activities, work queues are defined for each person who is involved in the work process. The system, through a series of reports, supports the management team weekly planning sessions by providing current status on all work in the District.

To illustrate how the Work Planning and Scheduling system supports the Districts, lets begin with a Customer Service Clerk entering a customer service request into the system. Because the system is online, no paperwork is done to initiate the request.

A Customer Service Man previews the work identifying, by using standard units, the labour, materials and vehicle requirements for the work. He also notes any requirements for special equipment, flagmen, police, or whatever.

These details are then entered into the system by the Engineering Clerk, who completes the estimate and depending on what the cost is, approves the work to be done.

Now based on the requirements, the Work Planner assigns the work to a crew using an online system. Depending on the size of the district, the Work Planner could be scheduling work for up to fifteen crews, each one capable of doing from one to five services a day depending upon the complexity of the request.

The terminal used by the Work Planner displays 132 characters. All the details of the work order are summarized into two lines that indicate the resource requirements. These orders are presented in date order based on our commitment to the customer.

Any order can be selected and assigned to a combination of crews. The Work Planner is kept informed of what work has been assigned to each crew on the summary line on the bottom of the screen.

Once the work has been assigned to the crews, the Work Planner reviews what has been scheduled for each crew. Here we can see that so far he has assigned 3.2 hours of work that take 164 minutes of travel time for this crew. Large productivity gains are possible by minimizing this travel time.

The Work Planner prints the work order and material list which is given to the crew by the Operating Superintendent.

**ENGINEERING ANALYSIS SYSTEM**

The planning for network expansion to meet the increasing demand of the customer requires information on the facilities and network load. Utilizing this information from the database, and programs running on a PC allows the Engineering staff in each district to productively evaluate future network expansion.

**OFFICE INFORMATION SYSTEM**

In addition to the four specialized systems, the Corporate Office Information System provides support for the administration and professional staff in common office activities.

It also provides online access to the Corporate Management Information needed to supervise staff, manage budgets and get general information on the Commission.

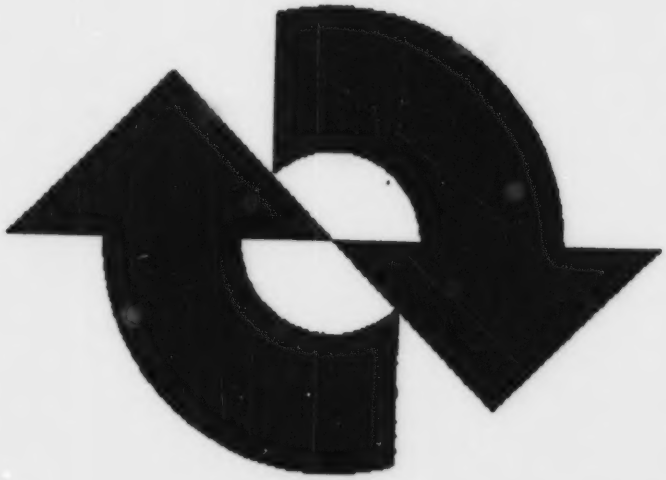
**END USER INTERFACE**

This presentation has identified a number of special terminals required to support he functionality needed by the applications. This end user interface can be changed to meet the requirements of the user, without any changes to the communications network. This flexibility and a single logon provides an easy to use interface for the user.

In these systems, we have used a couple of methods to reduce the amount of information that the user has to be concerned with. For instance, trouble calls are grouped together to form interruptions and in Work Planning and Scheduling, work orders are summarized for presentation to the Work Planner. As more information is made available, further presentation methods will be required to support the end user interface. One such method is using Graphics. In the area of service restoration, a Graphics System is being acquired to display the network to Distribution System Operators. This graphics display will become their main interface by 1991. Also, NB Power is involved with UNB in an R & D effort, utilizing expert systems to analyze the information to reduce the amount needed by the user to perform his job.

**SUMMARY**

In summary, we are organized to design systems which support the clients objectives, based on a System Development Strategy which provide systems for today and plan for the future. These systems are based on end user interfaces applicable to the functionality required by the application.



# NB POWER INFORMATION PROCESSING

## INFORMATION SYSTEMS ORGANIZATION

- Computer Services
- Client Services
  - Distribution Operations
  - Finance & Administration
  - Materials Management
- Information Center

# DISTRIBUTION OPERATIONS FUNCTIONS

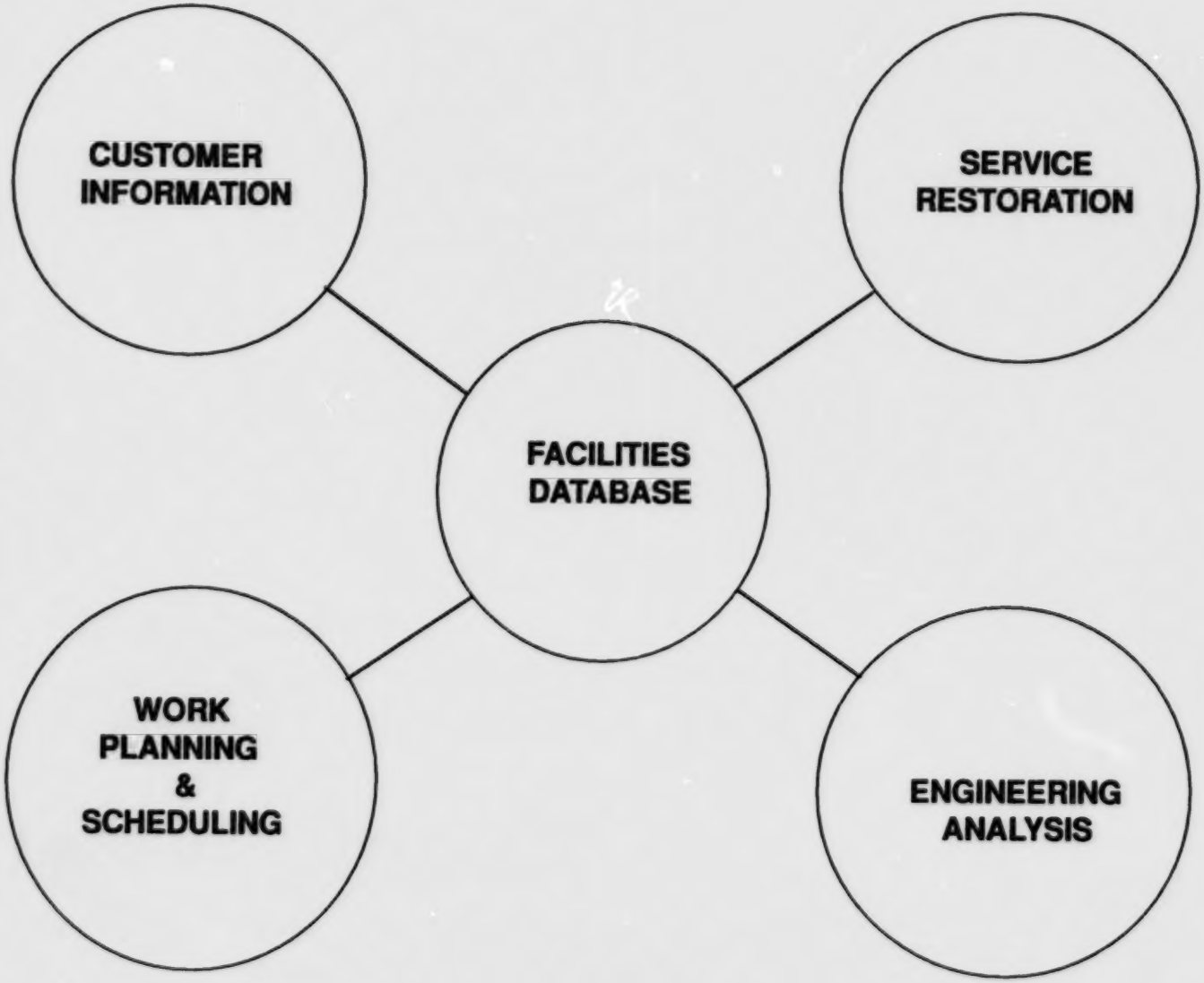
- o Customer Service
- o Operations
- o Engineering
- o System Operations

# OBJECTIVES - DISTRIBUTION SYSTEMS

- o Improve Customer Services
  - Level
  - Consistency
- o Improve Productivity

# SYSTEM DEVELOPMENT STRATEGY

- o Database
- o Applications
- o End User Interface


CUSTOMER INFORMATION
SERVICE RESTORATION
FACILITIES DATABASE
WORK PLANNING & SCHEDULING
ENGINEERING ANALYSIS

# FACILITIES DATABASE

- Computer Representation of the Electrical System from the Power Plants to the Customer

# SERVICE RESTORATION SYSTEM

Supports - Customer Trouble Calls

- o Customer Identification
- o Trouble Isolation
- o Priority Customer Identification

# SERVICE RESTORATION SYSTEM

**Supports - Trouble Call Tracking**

- o On Call Roster
- o Trouble Call Status

# SERVICE RESTORATION SYSTEM

**Supports - Interruption Analysis**

- o Trends
- o Follow up

# CUSTOMER INFORMATION SYSTEM

**Supports - Customer Service Requests**

- o Order Entry
- o Commit Date
- o Facilities Information

# CUSTOMER INFORMATION SYSTEM

**Supports - Customer Inquiry**

- o Bill Information
- o Power Usage Information
- o In Progress Work Status

# CUSTOMER INFORMATION SYSTEM

**Supports - Credit & Collection**

- o Customer Payment History
- o Payment Arrangements
- o Disconnect Notices

## CUSTOMER INFORMATION SYSTEM

**Supports - Meter Reading & Billing**

- o Meter Reading Data Collection
- o Meter Readings Transmission
- o Bill Calculation & Printing

# WORK PLANNING & SCHEDULING SYSTEM

**Supports - Work Identification**

- **o Work Classification**
- **o Work Order Templates**

# WORK PLANNING & SCHEDULING SYSTEMS

**Supports - Work Definition**

- o Resource Requirements
- o Estimate
- o Approval

# WORK PLANNING & SCHEDULING SYSTEM

**Supports - Work Scheduling**

- o Productivity
- o Commitments

# WORK PLANNING & SCHEDULING SYSTEM

**Supports - Work Management**

- o Work Queues
- o Management Reports

# ENGINEERING ANALYSIS SYSTEM

**Supports - Service Area Planning**

- o System Configuration
- o Intelligent Workstation

# OFFICE INFORMATION SYSTEM

**Supports - Automated Workplace**

- **o Word Processing**
- **o Electronic Mail**
- **o Time Management**

# OFFICE INFORMATION SYSTEM

**Supports - Management Information**

- o General Ledger Information
- o Employee Information
- o Generation Information
- o Power Information

## END USER INTERFACE

- o One Terminal
- o One Communications Network
- o One Logon
- o Many Applications

## END USER INTERFACE

- o Increased Information
- o Graphics
- o Expert System

## SUMMARY

- o Client Objectives
- o System Development Strategy
- o End User Interface

INFORMATION SYSTEM TECHNOLOGY CONFERENCE

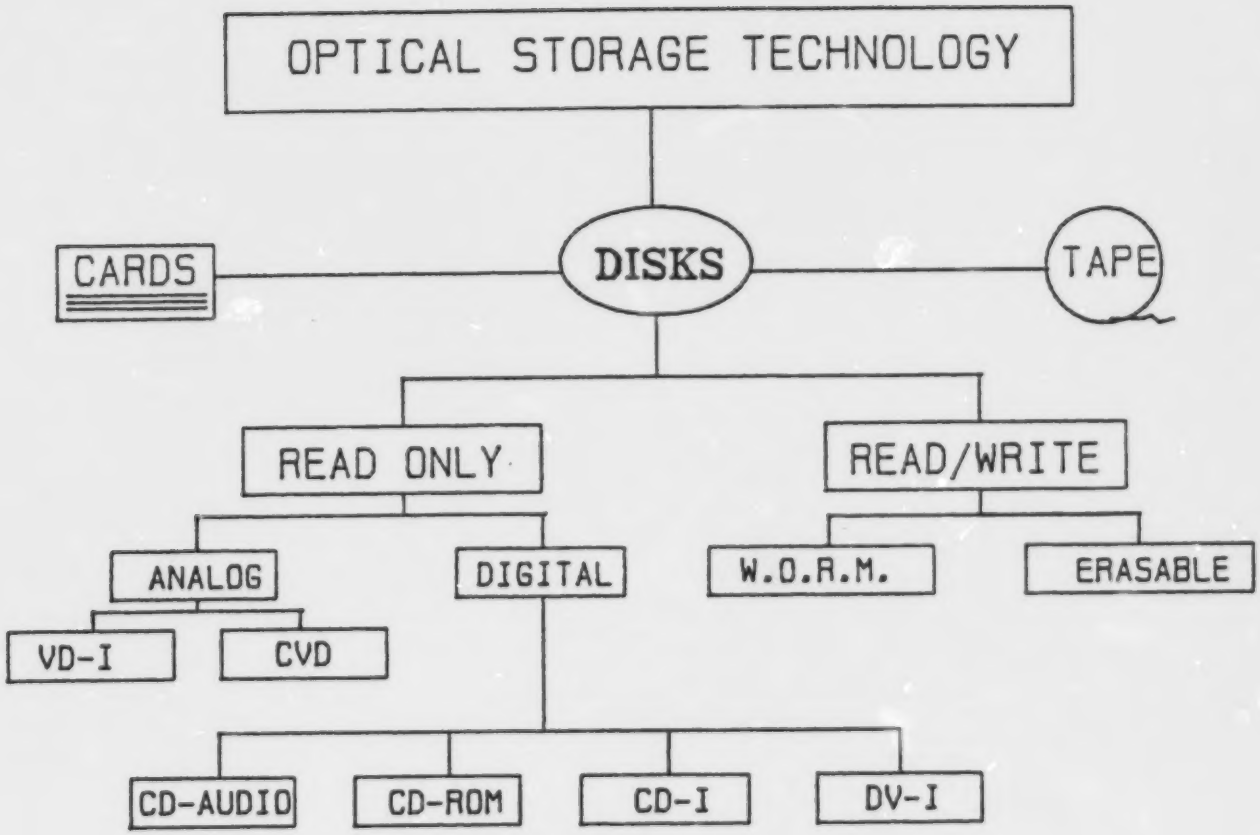
MAY 18-19, 1988

# OPTICAL DISK SYSTEMS AND APPLICATIONS

BY

DARYL HUNTER
*Research Project Officer*
*Land Registration and Information Service*

*Information Technology Conference*

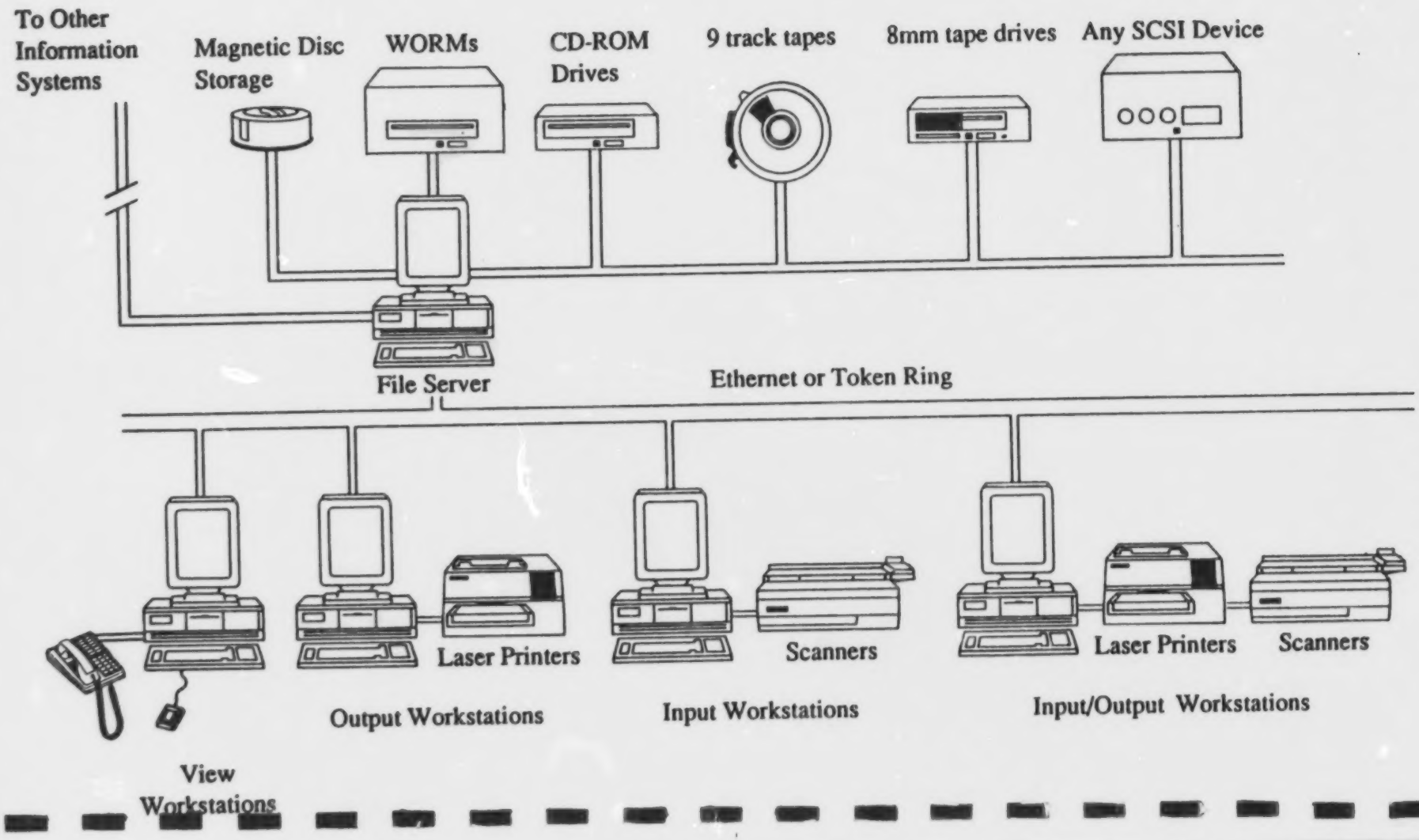



CD-AUDIO = Compact Disk - Audio
CD-ROM = Compact Disk -Read Only Memory
CD-I = Compact Disk - Interactive
DV-I = Digital Video - Interactive
VD-I = Video Disk - Interactive
CVD = Compact Video Disk
WORM = Write Once Read Many (times)

***Daryl Hunter***

***May 1988***

# Typical EDM Configuration



## *5.25 Inch WORM Drives*

**TABLE 1**

SELECTED CHARACTERISTICS OF WORM DRIVES

| | ISI 525WC | Optotech 5984 | Hitachi OD101 | Fujitsu M2505A | Toshiba WM-D050 |
|---|---|---|---|---|---|
| Date introduced in U.S. | 1985 | 1985 | 1986 | 1986 | 1986 |
| Disk size (diameter) | 5.25" | 5.25" | 5.25" | 5.25" | 5.25" |
| Disk capacity (single-sided) | 115MB | 202MB | 300MB | 300MB | 250MB |
| Single- or double-sided media | double | double | double | double | double |
| Average access (milliseconds) | 200 | 350 | 100 | 100 | 180 |
| Transfer rate (per second) | 2.5MB | 2.2MB | 690 KB | 690 MB | 1.25 MB |
| Controller interface | SCSI, PC bus | SCSI PC bus | SCSI | SCSI | SCSI |

**TABLE 2**

SELECTED CHARACTERISTICS OF WORM DRIVES (CONTINUED)

| | Maxtor RXT-800S | Panasonic LF-5000 | Pioneer DD-5001 | LMS 510 | ISI 525-GB |
|---|---|---|---|---|---|
| Date introduced in U.S. | 1986 | 1987 | 1987 | 1987 | 1988 |
| Disk size (diameter) | 5.25" | 5.25" | 5.25" | 5.25" | 5.25" |
| Disk capacity (single-sided) | 400MB | 200MB | 300MB | 327MB | 1.2GB |
| Single- or double-sided media | double | single | double | double | double |
| Average access (milliseconds) | 100 | 230 | 250 | 75 | 100 |
| Transfer rate (per second) | 1 MB | 2.5 MB | 1.5 MB | 600 KB | 6.5 MB |
| Controller interface | SCSI | SCSI | SCSI | SCSI | SCSI, PC bus |

# OPTICAL DISK TECHNOLOGY

## REVIEW OF THREE COMMON FORMATS

**WORM**

-Write Once Read Many(times) formats are used to store data, text, images, vector graphics, and even sound. A simple application is archiving digital map data to replace magnetic tape storage.

-WORM allows in-house writing to disk. 12 inch disks hold up to 5 GB of data, 5.25 inch disks up to 1 GB.

-emulates tape(CLV format) or mag disk(CAV format).

-data can be added but not erased; pointers locate latest data.

-prototypes of erasable magneto-optical disks are available.

-copying WORM disks is slow, not recommended for mass distribution of copies (use CD-ROM).

-has no standards, disks and drives must be compatable.

-used in Electronic Document Management(EDM) systems to store and retrieve scanned images.

-drives can be daisy-chained to increase capacity.

-drives cost $5,000 - $40,000.

-Examples of drives: Optimem 2400 (2.4 GB), Toshiba WM-S500 (5GB), NHance 5.25inch (1 GB).

-jukeboxes provide access to as many as 200 disks on line.

-jukeboxes cost $35,000(24 platter, 5.25) to $250,000 (200 platter, 12 inch).

-Examples of EDM systems: LaserData's Laserview and AGA's, Discuss 2001 networked, PC based, document management systems.

**CD-ROM**

-Compact Disk - Read Only Memory formats are primarily used for mass distribution of information, ie. publishing of data bases.

-Hi-Sierra(9660) standard; any disk can be read in any drive.

-5.25 inch standard size.

-must be mastered and stamped at a service bureau. Masters cost $4,000 and up, copies are $15 each.

-not compatable with WORM.

-drives can be separate units or built into PC's. Cost about $1,000. Some like Apple's drive can also play audio disks.

-Examples of publishers: Grolier Electronic Publishing (Electronic Encyclopedia); DeLorme Mapping (World Atlas), Microsoft (Bookshelf).

**Video Disk**

-Earliest form of Optical Disk(1980)

-8 inch to 12 inch sizes.

-three levels of interactivity, four more under development

-used primarily for still frames or video motion.

-used in training and educational applications.

-analog input is by video camera.

-Digital Video -Interactive(DVI) has been recently developed.

-images from video disks are usually displayed on television sets rather than computer monitors.

-resolution is not as good as CD-ROM, WORM or CD-I.

-like CD-ROM they must be stamped out at a service bureau, usually from 35mm video tapes.

-video disk players start at $1,000 and run up to $15,000 for total interactive systems.

-Example of system applications: Storing real estate photos of buildings, CPR training, industrial training, museum artifacts storage.

## ADVANTAGES OF OPTICAL DISK

### W.O.R.M. Technology

- one 12 inch disk can replace up to 40 magnetic tapes.
- one 12 inch disk can store over 500,000 word processing pages(ASCII).
- one 12 inch disk can store up to 70,000 scanned document images.
- no processing required as with microfilm; no turn around time delay.
- document original and image can be viewed together for editing before storing.
- on line access, no files out or misplaced.
- fast access - one to four seconds.
- multiple access, several people can share same files.
- remote access, LAN and FAX.
- remote printing.
- can store sound as part of the data base.
- can store motion (illustrations and flow patterns).
- can store computer data which can be manipulated and sorted.
- permanent storage for at least 25 to 30 years without need for copying or exercising as with magnetic tape.
- permits image enhancement.
- no loss of quality when copied.
- 16-64 levels of gray scale possible(good half tones).
- up to 256 shades of colour.
-provides audit trails, new data is added, old data is not overwritten, pointers are used to keep most up to date versions.

INFORMATION SYSTEM TECHNOLOGY CONFERENCE

MAY 18-19, 1988

# INTEGRATED RADIO COMMUNICATION SYSTEM

BY

JOHN W. PALMER
*Radio Communication Engineer*
*Department of Transportation*

# THE PROVINCE OF NEW BRUNSWICK'S

# INTEGRATED RADIO COMMUNICATIONS SYSTEM

Presentation by

John W. Palmer, P. Eng.
Radio Communications Manager
Department of Transportation
Technical Services Branch
Radio Communications Section

Government Information Technology Conference

May 19, 1988

SYSTEM DESCRIPTION:

The Integrated Radio Communications System (IRCS) is a province wide mobile radio network serving several Provincial Government departments and agencies as well as a limited number of Federal Government agencies, including RCMP. The IRCS is maintained, and operated by the Department of Transportation's Radio Communications Section. It is operated and controlled on a twenty four hours/day year round basis by trained licensed Dispatchers.

BACKGROUND:

In the early 1980's an interdepartmental Radio Communications Planning committee was formed. This group was represented by those provincial departments with existing radio systems, or an identified future mobile radio requirement. The RCMP and Emergency Preparedness Canada were also members, as they intended to be financial contributors and make use of the system as well.

The mandate of this committee was to present to Government, its recommendation concerning the provision of an integrated mobile radio communications system, that would serve the needs of the Province and these participating departments. A recommendation was made, and accepted by Treasury Board. Permission was granted for Transportation to be the lead Department and to proceed with the construction of an Integrated Radio Communications System (IRCS).

DEFINITIONS:

- Mobile radio : two way radio, primarily from motor vehicles, utilizing frequency modulation (FM) on either the Very High Frequency (VHF) 150-170 Mhz or Ultra High Frequency (UHF) 410-415 Mhz bands.

- Base station radio: This is a fixed radio located in an office and used to communicate with field staff.

- Repeater : a VHF or UHF radio receiver/transmitter located on a mountain or high ground, used to retransmit the relatively weak signals received from a vehicle so it can be heard over a greater geographical area.

- Microwave radio backbone system: A communications network utilizing the 1.8 Ghz band, primarily used to provide a means by which signals from the VHF or UHF repeaters can be carried throughout the province.

- Integrated Mobile Radio: ability for different agencies to communicate with each other using their own radio equipment.

- Control Centre: a facility that provides the integration of mobile communications as well as providing important services to various users of the system.

- interconnection : electronically connecting the signals of two repeaters or devices so as to provide for communications between those staff using these devices.

- Device : this includes repeaters, extension telephones, consoles, tie lines and public telephone network.

- Switching equipment: Part of the Control Centre. This hardware is wired to the individual microwave circuits of various agencies, and in conjunction with the console computers enables communication between users.

- Radio coverage: This is the geographical area over which a particular radio device provides reliable communications.

SYSTEM CONCEPT:

The IRCS was designed with three main components as follows:

1. The Microwave Backbone portion.
2. Mobile Radio networks of individual agencies.
3. Provincial Control Centre

The system operates as follows: The mobile radio system repeaters of the various agencies are located at the new microwave sites throughout the province. These are interfaced to the microwave radio equipment so that the mobile signals can be carried through to the Provincial Control Center in Fredericton where they can be redirected to other areas of the province for that agency or interconnected to any of the other IRCS agencies.

The participating provincial government departments and agencies of the IRCS are as follows:

Transportation
Health & Community Services - Ambulance Services
N.B. Highway Patrol
Municipal Affairs & Environment - EMO
Natural Resources & Energy
Sheriff/Coroners
Extra Mural Hospital
Occupational Health & Safety Commission
Canadian Forestry Service
RCMP

Municipal Police and Fire departments are also authorized to use the EMO system in cases of emergencies.

CONSTRUCTION:

1) Microwave Backbone Portion

Once the Integrated Radio Communications System had been approved for construction, a specification package for the microwave radio backbone portion was prepared and advertised for public tender. Harris Farinon Canada Ltd. of Dorval Quebec was successful in receiving the contract. Construction

of the twenty one microwave radio sites located throughout the province commenced in June 1984 and was completed in January of last year ('87).

This portion involved the development of twenty one radio sites, including construction of equipment buildings, erection of radio communications towers ranging in height from 150 to 325 ft and manufacture and installation of the microwave equipment at each of these twenty one sites.

2) Mobile radio Equipment Portion

Several agencies already had a certain amount of mobile radio equipment in place, while others had no system at all. Existing systems required modification and expansion, while other agencies needed new mobile networks to complement the new system. This included the design, purchase and installation of UHF and VHF repeaters, mobile radios for vehicles, base stations for offices as well as the necessary antenna equipment for several of the agencies as noted above.

A shared mobile radio network was also designed and is being to placed into service this month. It is called the General Government Services mobile radio system.

The majority of mobile radio and base station equipment was manufactured by Midland Land Mobile Radio Co., and purchased through to Airtel Communications of Fredericton. Most repeaters were manufactured by Phillips Electronics and purchased through NBTEL.

3) Provincial Mobile Communications Centre

In order to provide the "integration" aspect of the system, a control center and associated switching equipment was designed and awarded to Rantech Electronics Ltd. of Toronto. This equipment was installed and placed into operation in April 1987. The Provincial Mobile Communications Centre is staffed by DOT dispatchers.

This Control Centre is able to connect various agencies repeaters throughout the province to other repeaters. This enables one agency to extend its radio coverage province wide. Communications with different agencies is also possible.

Communication with the RCMP and NBHP is made possible by dedicated microwave links between the Provincial Control Centre and RCMP and NBHP.

SYSTEM MAKE-UP

Each of the twenty one remote radio sites around the province is equipped generally as follows:

- Several mobile radio repeaters(UHF & VHF FM) used by the different agencies. These repeaters receive the relatively weak mobile radio transmission from vehicles and re-transmit them over a substantial radius of coverage. This radius varies between 40 and 100 miles.

- Microwave radio transmitters (5 watts) and receivers and associated equipment to permit the repeaters signal to be carried through to the control centre switch in Fredericton.

- Antenna supporting structure used to accommodate the large microwave dishes( 8 ft. diameter) as well as the mobile radio repeater antennas. These mobile antennas are shared by the various agencies so as to reduce the wind and ice loading on the tower.

- Alarm monitoring equipment used to constantly monitor the status of such things as doors being opened, smoke detectors, microwave equipment malfunctions, transmission line status, NBPOWER failures and emergency generator status.

- Site to site radio telephone system.

- Emergency power generators (propane)

COMPUTERIZED ASPECT OF SYSTEM OPERATION

Staff in their vehicles throughout the Province,if properly equipped with the appropriate mobile radio are now able to call into the Provincial Control Centre in Fredericton and receive a variety of services. Such a call is made in the following manner:

The user in the field selects the channel for the repeater nearest their location. They then press the "Ø" and then the "#" button on the touch tone pad on their microphone. This produces DTMF (dual tone multi-frequency) tones similar to that heard when dialing a telephone. This signal electronically couples the transmitted radio signal from the repeater to the dispatchers computer console in Fredericton at the Provincial Mobile Communications Centre. The "call" is acknowledged on the computer console.

The consoles are IBM XT computers using EGA high resolution color monitors. These computers are standard XT models, however, they are equipped with a special circuit board designed by Rantech Electronics, which allows the Dispatcher to communicate with mobile in the field.

All mobile radio repeaters around the province are interfaced dedicated microwave circuits which terminate at our "hub" radio site in Fredericton on the Vanier Highway. The microwave system has a total capacity of approximately 120 dedicated circuits for the west side of the Province, ie Fredericton to Campbellton and the same amount for the East side, ie Fredericton to Belledune. All of these circuits are wired to the Control Centre switch which is co-located at the hub radio site in Fredericton.

The Provincial Mobile Communications Centre and its associated console equipment is located in down town Fredericton in the old Victoria Public Hospital. A microwave radio link between the Vanier radio site and downtown allows these consoles to be remotely located away from the actual switch. The switch communicates with the consoles over this

link through a modem at 1200 baud.

As calls are placed, they appear on the computer screen as a location and agency, for example...."Woodstock DOT". The dispatcher is able to answer the call by simply pressing one of the function keys.

Some agencies equipment generates an Automatic Number Identification (ANI) each time access to the Control Centre is made. This ANI is actually a 5 digit DTMF tone pulse that is generated each time the "#" key is pressed on the tone pad. These unique numbers are used to identify the individual user. Whenever such a call is received it appears on the console with the ANI digits displayed as well.

All agency repeaters (devices) have been assigned a four digit number. If a call is originated by the Dispatcher, they enter that four digit sequence and press the Connect function key. Once this is done the Dispatchers microphone head set becomes active and he is able to transmit over that particular agencies repeater.

CONTROL CENTRE EQUIPMENT SOFTWARE

There are three aspects to the software being used to operate the Integrated Radio Communications System. One is the software programmed in PROMS on the actual switch equipment that is located at the Fredericton Radio Site. This software controls such things as which particular digits the switch recognizes for various types of calls. For example the system is now configures to recognize the two digits "0 #" as a normal call from a mobile or base station. "9 #" is recognized as an emergency call.

Another aspect is the operating system software. This is on floppy disk, and in drive "A" of each console. This provides the various screen information, four digit codes, agencies, site names, device allocation as well as the "handshaking" required between the witch and the consoles.

The final aspect of software is the Rantech Electronics circuit board installed in each console computer. This provides the synchronization between consoles, certain timing functions.

STATISTICS GATHERING SOFTWARE

As calls are received at the Control Centre, their particulars are recorded on one of the disks on that computer console position involved. The following "call" details are recorded.

- date
- Automatic Number Identification if applicable
- originating repeater or other device used
- call type
- time initiated
- time connected
- Destination repeater or other device
- time disconnected

This information is stored for all calls. There is also information recorded for alarms that appear from time to time. This is useful in trouble shooting system faults.

SUMMARY

The Integrated Radio Communications System is now in place and serving many agencies. It is now possible for these agencies to communicate with each other during normal operations and more importantly during emergencies.

For further information on the system, direct all inquiries to:

Department of Transportation
Radio Communications Section
P.O. Box 6000
Fredericton, N.B. E3B 5H1

ATTN. John W. Palmer, P. Eng.
(453-3393)

INFORMATION SYSTEM TECHNOLOGY CONFERENCE

MAY 18-19, 1988

# AUTOMATED PURCHASING SYSTEM

BY

JERRIE FOWLER
*A. D. M., Services and Administration*
*Department of* Supply and services

# AUTOMATED PURCHASING SYSTEM

# PROVINCE OF N.B.

| | |
|---|---|
| POPULATION | 712,300 |
| REVENUES | $3,262,961,700 |
| EXPENDITURES | $3,292,711,513 |
| EMPLOYEES | 10,820 |

# DEPARTMENT OF SUPPLY & SERVICES
## INFORMATION SYSTEMS DIVISION

Computers: Unisys 1100/92,
Unisys 1100/72, IBM4381

| | |
|---|---|
| Memory | 40MB |
| Storage | 49GB |
| Production Systems | 61 |
| Production Runs Monitored | 2500 |
| Terminals | 900 |
| Employees | 200 |
| Annual Budget | $18,000,000 |

# DEPARTMENT OF SUPPLY & SERVICES
## CENTRAL PURCHASING

| | |
|---|---|
| **Annual Volumes:** | |
| Purchases | $140,000,000 |
| Purchase Orders | 12,000 |
| Standing Offers | 800 |
| Annual Contracts | 130 |
| | |
| Registered Vendors | 4,000 |
| Commodities | 1,800 |
| Employees | 22 |

# STANDING OFFERS

| YEAR | AMOUNT | RELEASE (Thousands) | VALUE (Millions) |
|---|---|---|---|
| 85-86 | 98 | 1.9 | 5.5 |
| 86-87 | 132 | 2.4 | 7.3 |
| 87-88 | 136 | 2.8 | 11.0 |

# CONTRACTS OF SUPPLY

| YEAR | AMOUNT | RELEASE (Thousands) | VALUE (Millions) |
|---|---|---|---|
| 85-86 | 480 | 27.0 | 12.0 |
| 86-87 | 510 | 31.0 | 14.0 |
| 87-88 | 791 | 48.3 | 30.1 |

# LONG TERM CONTRACTS

| YEAR | AMOUNT | RELEASE (Thousands) | VALUE (Millions) |
|---|---|---|---|
| 85-86 | 480 | 27.0 | 12.0 |
| | 98 | 1.9 | 5.5 |
| 86-87 | 510 | 31.0 | 14.0 |
| | 132 | 2.4 | 7.3 |
| 87-88 | 791 | 48.3 | 30.1 |
| | 136 | 2.8 | 11.0 |

Color code: Contract of Supply
Standing Offer

# SYSTEM REQUIREMENTS

## LEGISLATIVE

- ☐ Public advertising
- ☐ Registered vendor lists
- ☐ Rotation of tenders
- ☐ Public access to information

# SYSTEM REQUIREMENTS

## ADMINISTRATIVE

- ☐ Improved statistical information
- ☐ Reduction in clerical workload
- ☐ Buyer productivity

# SYSTEM PROBLEMS
## (OPPORTUNITIES?)

- ☐ Multi-commodity requisitions
- ☐ Local Purchase Order tracking
- ☐ Data Entry workload
- ☐ Manual source documents

# SECURITY CONCERNS

- ☐ Ability to change original data
- ☐ Unauthorized purchases
- ☐ Confidential information

# SYSTEM DESCRIPTION

## FUNCTIONS PERFORMED

- ☐ Vendor Registration
- ☐ Tender Rotation
- ☐ Invitation to Tender
- ☐ Record of Tender Results
- ☐ Purchase Order Generation
- ☐ Purchase Order Alterations

# SYSTEM DESCRIPTION

## PURCHASING PERFORMANCE

- ☐ Outstanding Requisitions
- ☐ Outstanding Tenders
- ☐ Urgent Tenders
- ☐ Tender Schedule
- ☐ Tender Summaries
- ☐ Purchasing Officer Summary

# SYSTEM DESCRIPTION

## VENDOR PERFORMANCE

- ☐ Delivery Schedules
- ☐ Pricing
- ☐ Quality
- ☐ History of Replies

# SYSTEM DESCRIPTION

## EXTRACT REPORTS

- Single Source Summary
- Other Than Low Bid Summary
- N.B. Manufacturer Summary
- N.B. Supplier Summary

(continued)

# SYSTEM DESCRIPTION

## EXTRACT REPORTS (continued)

- ☐Canadian Manufacturer Summary
- ☐Canadian Supplier Summary
- ☐Purchase Orders by Vendor
- ☐Purchase Order by Commodity

# SYSTEM DESCRIPTION

## REPORTS AVAILABLE

- ☐ Purchasing Performance Reports
- ☐ Vendor Performance Reports
- ☐ Contract Amount & Value of Releases

(continued)

# SYSTEM DESCRIPTION

## REPORTS AVAILABLE (continued)

- ☐ Dollar Value & Units Purchased by Commodity
- ☐ Dollar Values By Vendor
- ☐ Regional Purchases
- ☐ Irregular Purchases

# SYSTEM DEVELOPMENT

| | ORIGINAL ESTIMATES | ACTUAL |
|---|---|---|
| Cost | $100,000 | $350,000 |
| Time | 6 mos. | 14 mos. |
| Benefits | $ 30,000 | $1,000,000+ |

# SYSTEM BENEFITS

## LEGISLATIVE REQUIREMENTS

Meets all requirements

- ✓ Registered vendor lists
- ✓ Rotation of tenders
- ✓ Public record of tender information

# SYSTEM BENEFITS

## ADMINISTRATIVE BENEFITS

- ⇨Improved buyer productivity
- ⇨Improved clerical productivity
- ⇨Improved turnaround
- ⇨Better document tracking
- ⇨More timely response to information requests
- ⇨Purchasing savings

# STRATEGIC BENEFITS

- ✓ Improved planning information
  - Standing Offers
  - Annual Contracts
  - Requisition Grouping
- ✓ Improved make vs buy decisions
- ✓ Better forecasting information
- ✓ Better pricing information
- ✓ Improved work planning

# MAPPER APPPLICATIONS

- ☐ Payroll Reporting
- ☐ Budget System
- ☐ Vital Statistics
- ☐ Land Inventory
- ☐ Library Information
- ☐ Purchasing System
- ☐ Nursing Home Information System

# DMS APPLICATIONS (22)

- ☐ Property Tax
- ☐ Consumer Tax
- ☐ Medicare
- ☐ Financial Information System
- ☐ Court Information System
- ☐ Driver Licensing
- ☐ Social Services
- ☐ Student Loans

# SYSTEM COSTS & SAVINGS

- Operating costs $120,000
- Purchasing savings $1.5 - 2.5M
- Productivity saving ?

# SYSTEM FUTURES

- ⇨Additional planning
- ⇨System interfaces
- ⇨User access
- ⇨Supplier access
- ⇨Interface with other jurisdictions

# SUMMARY

- ✓ Legislative requirements met
- ✓ Administrative requirements met
- ✓ Improved planning & forecasting
- ✓ Vendor & Purchasing performance measurement
- ✓ $ savings approx. 2.0 million
- ✓ Future capabilities

INFORMATION SYSTEM TECHNOLOGY CONFERENCE

MAY 18-19, 1988

# WORKPLACE SYNERGY : TECHNOLOGY AND PEOPLE

BY

JUDITH HURWITZ
*Senior Consultant and Senior Editor,*
*Patricia Seybold's Office Computing Group*

**INFORMATION TECHNOLOGY CONFERENCE**

MAY 19, 1988

**JUDITH HURWITZ**

Keynote Speaker

I just want to review a little bit about what my format is going to be this afternoon. I'm going to be talking first of all about teamwork and about groups of people working together. This is important because we're in an age where there are not always more people resources, but computers are getting faster and more available so that we can and will be getting more computer resources. So we somehow have to balance the limited people resources with the growing abundance of computer resources, and before we can use those computer resources efficiently we have to be able to work together as people.

So first, I'm going to concentrate on that and give you some ideas to think about. After that I'm going to talk about some of the technologies that are beginning to emerge, some of them that are already here in products today, and some of them that are only beginning to be available as products and how those are going to be used in the future. And I would like this to be an interactive session and I would really encourage you to ask questions about things that I say and about things that I don't say. I won't, in the short time that we have, be able to cover every area of technology, but if there are areas that you are concerned about and want to know what we in the Office Computing Group think, I would really encourage you to ask questions.

What I'm starting with is a *notion of teamwork*. Teamwork is not just people in meetings but it's a way of people working together to create synergy, and synergy, you've probably all experienced it. There are situations in which everybody seems to be working together and everybody seems to know what to do and nobody as a dictator has to stand up there and shout orders. Everybody seems to know what will help the group, what will help things work, and what will get things perking, and this is what we mean by synergy.

(Tape on Synergy - Film: Witness)

What's nice about a scene like this is that there is no one dictator standing out there saying come on, and you do this and you do that and there's nobody telling the children to hand the workers a glass of lemonade, yet everybody seems to know what to do to help the whole process. *This is synergy*. And I think that the objective that we need to work for in our organizations is to have sustained synergy so that whenever we work together we can find ways to help that happen all the time, as a way of working together.

**What helps Synergy happen ?** Well, we all have to work together. We have to be intuitive and not just exclusive. We can't have three or four people who dictate everything. Everybody has to be included because everybody has talents. We have to have a group knowledge. In other words we all have to have certain understandings and share the individual pieces of information that we hold in our brain with each other. We also have to support the learning process and the cooperative process and we also have to support discovery and learning. It takes work for this to happen. So the characteristics of the community that you want to get to, is you both *have* a leader and *don't have* a leader. You have diversity, you have many different opinions.

At lunch, someone mentioned to me that there is someone in their organization that is always questioning and always saying *'why are you doing this, what's this for'*. You need this type of

person, and you also need the visionary out there that keeps saying *'let's try new things that have never been explored before'*. You have to build consensus, and you have to build trust, and you have to be allowed to make mistakes, allowed to be vulnerable.

I'd like to try an exercise with everybody. Trust and working together starts with communication and what I'd like to do is have groups of three people get together and you're each going to play a role, so I want one person to be the listener, the second person to be the speaker, and the third person is going to be the consultant, is going to listen to what happens and give an opinion and each is going to be able to play each role. So don't worry if you're a listener you get to speak next time. What I want you to do is describe a room in your house, in as much detail or as little detail as you want. You have a minute. The listener listens to the description, and after the speaker is finished, the listener is going to describe back to the speaker what was said. Then the third person will say how the listener did in listening to what was going on. Then the speaker becomes the listener, the listener becomes the consultant, and the consultant becomes the speaker. So you can find groups of three and I'll give you thirty seconds to that.

Speaker starts!

Now listener it's your turn - Go.

Now it's time for the consultant to take over. Consultant tell your listener how well they did, listening to the speaker. Go.

How did that go? What feelings do people have, was it easy, was it hard? What was it like to listen that way, the people who were listening ?

It's a challenge because what you're doing is that you have to listen very hard because you have no basis, you don't know what the speaker's world is like and when you're listening you have to listen very hard for the details. And then when you're interpreting, and if the original speaker is listening to the way the listener is interpreting, it is interesting how suddenly some details, that are

very clear in his/her mind about what he/she meant, sound a little bit different when the listener says it back. And that's very important because that's what goes on in our conversations and our meetings. We have a very clear idea of what we are trying to get across, we have a good picture of it and we know what we are trying to say. The person that is listening may get an entirely different picture, and this is why teamwork is sometimes very difficult to achieve. But that doesn't mean it is less important.

Once we have mastered teamwork, we then will have the option of applying some technology because technology can assist this thing *Synergy*. To first get the groups working together, you must get them understanding each other, learning to listen to each other, respecting ideas, allowing people to make mistakes, and not faulting them for their mistakes, because mistakes are the way we learn.

**So here comes the technology.**

These are the areas of technology that are going to be evolving over the next few years that are going to help us. The first on this list is Distributive Network Computing. I'll just give a quick definition and we'll get into more detail as we go on, and please ask questions if there's something that I don't explain clearly enough for you.

Distributive Network Computing is the way a lot of different computers in a very transparent way can exchange information with each other, allowing the end user to see transparently the resources of many different computers at one time. Agents are ways of automating procedure. So that, if there is a routine that you do every day, you can have in it what we call an intelligent agent which can program that for you so that the routines that you do every day are set up for you in advance.

Procedural automation is the way the agents do that, that's the outcome. Multitasking workstations are the technologies that allowed all of these multiple events to happen at the same time and quickly. Cooperative processing is the type of software and the type of work that we're going towards. There are very few instances today, where one person does an entire project by themselves, especially in government. There are always multiple groups of people that have to work together in work groups, in project teams, in task forces to get things done. So if there is software that can aid people who have to work together in teams we would be a lot better off. These are the underlying technologies that are coming.

In Distributive Network Computing, you have a whole group of computers, you have a mainframe, you have a couple of mini computers, you have some high power workstations. Right now in a lot of instances, you have islands of automation. You have your mini computer over here doing some tasks, running some applications, you have basic users on local area network, you have users who are using stand alone PC's, and you have a mainframe to do other applications. That's fine except that some machines may have a lot of unused resources, while other machines may be overtasked. So in order to make the best use of your resources, tie them altogether into a very transparent network. This also allows better communications between people, because if all of the resources are attached to each other, people can then get access to the resources they need with of course the proper security built into it. And we are actually beginning to find technology developing that will allow this to happen.

The applications that are best suited to distributive network computing is any application which is currently handled sequentially, one thing at a time, and where all parts could be handled in parallel, involving more than one person programs and processes. This is an area where distributive network computing will find an application.

What will these applications look like ? We may be designing complex systems software that involves lots of people. People may be working on different parts of this and with this distributive network computing environment, it doesn't matter where in the network and individual is working. All the pieces are being locked together by the network and brought together when they have to interact with each other. But you could have people with application on a mainframe, another piece could be running on a mini computer or a PC, depending on what you have in the network, and what applications and what resources that application needs.

Another area, is collabortive work, people designing and writing documentation or proposals, where often one person will write the proposal and hand it to another who then marks it up who then passes it to a third and to a fourth. It makes a lot of sense to have all these people work simultaneously so we may have a document where six or seven people can react to parts of the proposal in the writing and creation stage and propose different ideas that another individual may never have thought of. It really helps the brainstorming and the idea creation. There's is also the idea of problem solving and fact finding.

A simple example, which most of you are familiar with, is electronic mail. This is a great application for collaborative work. You send the message out, 'I'm looking for an answer to this problem', somebody else says well I tried something this way, and another person says well that's interesting, I tried it this way. You can get a lot of ideas flowing that way. Of course something like distributive network computing requires a lot of processing power and requires a lot of graphics on the desktop and a lot of multitasking. And this is something that is coming with the next generation of computers.

If any of you are familiar with the 386 processor you know how much power is at the price of a few years ago we paid for an IBM XT computer you can now buy 386 machines that have incredible amount of power. Also, new *RISK* chip processors are being developed by a variety of different

computer vendors who are providing this type of power. Apollo computer has a distributive network computing technology called *NCS* which is beginning to build momentum within the computer industry and a lot of vendors are beginning to look at this as a foundation of their future distributive network computing. This set of software allows an application to be split over a number of processors, it allows a user to run programs anywhere on the network where there are resources. It also gives the user a simple view of the whole system yet it is using the resources of a large varieties of systems and this is something that you will see evolve over the next few years.

Agents as I mentioned before, and they're not always secret, are a very helpful tool. Let me give you a scenerio of how an agent might be used. Every morning I like to log onto my system and I like to make sure that I find out the latest stock reports of the three stocks that I own, and I want those to be looked at, I want to go onto Dow Jones, check out my stock and if my stock went up, I want a message put in my electronic mail box so that I am told that my stock went up 2 points, do I want to sell or I want a message also if my stock dropped three points, so maybe I also want to sell. I also want to make sure that I check my mailbox to see if I have any messages from my boss, and if so, I want to open my mail and show me those three messages.

Now I have this agent, instead of having to program to get this done, I have this idea of an agent and I say to my agent go and do this and now I may use the mouse or some sort of technology that allows me to point to what I want done and it remembers everything that I've done and I also say I want this done every day so every day my agent knows what I want to do and will repeat that as often as I want. And that is quite a powerful idea, and you can think of ways that this could be expanded to all other areas. For example, let's say in the procurement area you could have it go and check to see the level of procurement in your department and if more than a thousand dollars is being spent by a certain department for certain parts you may want to be alerted in your electronic mailbox. If they are not spending enough maybe you also want to be alerted. Maybe if they are spending a certain amount of dollars and you want a message sent to them asking if they

are aware of how much they are spending. So there are all sorts of ways that this technology can be applied.

One of the leaders developing the concept of agent is Hewlett-Packard in a product called *New Wave*. New Wave is in fact an agent type facility with an artificial intelligence built in to set up the automated procedure in a very graphical way. So procedural automation is something we will see a lot more of in the future, and it will help us begin to automate and streamline the things that are routine by using these agents and robots, so that we can spend our time and our energies on the things we have to think about and not the things that we do out of routine. This is how agents can really be helpful.

Important and implicit in this is the idea of multitasking workstations. If you are going to do agents and have these agents talk to your spreadsheets and your database and your electronic mail and your wordprocessing documents, you need to be able to run more than one thing in your workstation, so that we will begin to see many more of these graphical workstations that allow users to do lots of things at once, and this is the technology that exists today. It will become cheaper and cheaper so that more and more individuals can afford to use that technology on their desktop.

Where this is leading and where the real excitement is in the future is the notion of computer supported cooperative work. It is really a very simple concept in one way. We're going to use computers to allow us to do those group projects together, so that if I am working on a document, I can let three or four other people share that document with me and at their own level, almost a hypertech level, enter their suggestions and thoughts about this project that we're all working on together and hopefully this is going to help to generate new ideas and new thoughts and make that whole process of doing our reports and projects together a lot faster and a lot smoother with a lot

more ideas in there. There are other ways that we are going to see computers support a cooperative work, working now.

Computer conferencing : we can't always get everybody together in the same building. It's expensive. So the notion here is that we can have computer conferences. Sometimes they are audio conferences, sometimes they are a combination of some audio and some computer, where people are actually sending interactive messages, sometimes with voice in it, sometimes with pictures, being able to pull out pieces of video if they happen to be relevant. Perhaps there was a speech given by one of the Ministers in the government, and, as part of the meeting, you want to say ' look at what the Deputy Minister said at the last meeting . This is an indication of what we need to start to working on. He's committed to this so let's take a look at what he has to say '. It will really help the process of being able to build project teams. Project management, then, is able to adjust and be fluid project management. You can have dynamic plans changes, supported by this type of work where everyone's plans are dependent on everyone else's. If you are scheduling resources, it may allow those resources' schedules to be adjusted automatically. If you need three more days, let it go ahead and work on everyone else's schedules to push everything back. So everyone is working with the same schedule.

There's also the idea of collaborative offering as I mentioned before, the idea of your task force all working together on a document, on a plan. It could save months and months where you pass documents back and forth among people without having interactive information. If a third person, who has violent disagreements with one of the points in your report, would have had the opportunity to give you some feedback which may change your thinking three months before, maybe you would rewrite that section in accordance with some of the ideas that people are bringing forth. You don't always have to go into a conference room and have endless meetings to get a lot of this work accomplished.

There is also the ideas of databases and stored knowledge. We each have a lot of knowledge in our individual areas and we keep it all to ourselves. There is a lot of knowledge out there that needs to be shared among people, so that the people know what each other is doing and there is valuable information in all of your organizations that is important for each other to have access to.

**Where are we going in the 90's ?** We need to have distributive network computing, we need to experiment, we have to experiment with cooperative workstyles, cooperative processing, and we need to combine teamwork and technology.

I want to show you another little video clip that I have that indicates... - let it speak for itself.

( Video showing )

Again, to reiterate what I was talking about, we first have to master teamwork. We have to learn how to listen to each other, we have to make sure that what we hear is really what the other person is saying, and we have to apply that to the way we work in teams. We have to learn to work better in teams, we have to learn to trust each other, we have to allow each other to make mistakes. We have to learn to make that synergy happen and once we do that and once we've learned that the process of sustained synergy is working in teams, then we can begin to apply technology, because that is not going to be our problem. The technology exists. It is moving at a very rapid pace and there are lots of things happening in networking technologies in the areas of standards and operating systems and in networking and in database technologies.

We are getting to the point where we are developing toward cooperative processing, where things can happen on one machine and then move to another and the user is not involved in this process. The user gains all of the power of these networks and the software without having to do a lot of up

front work. Our electronic mail systems are going to get a lot more sophisticated. It is going to help us in the process of communicating better with each other.

We will have software like Motives Development Corporation *KNOWS*. I don't know if you have heard of this new product developing, but it is a conferencing software that allows groups of people to comment and to add their information to specific databases, so all you have to do is call up on the screen a specific area, a note area, and add comments to it. Each person when they get a new idea adds another comment. That amounts to the database. There are lot of software products being developed to help that process, and that's going to continue and we're going to have more and more of this technology.

The processors themselves are gaining in power. We have today the 386 and tomorrow we'll have the 486. We're going to have a lot of windowing software, both in the scientific and engineering community. The commercial sectors are beginning to come together with things like *Presentation Manager*, *X-Windows*, things like *New Wave* from Hewlett-Packard. These are going to give us the tools in our hands that can get this type of work done, so we have to be ready to use these tools and the way that we would use these tools is by having those teams in place. They can learn to work together, so that we can really use this technology the way it was intended to be used and make the best use of it.

---

Judith Hurwitz is a Senior Consultant with Patricia Seybold's Office Computing Group, Editor In Chief of **UNIX in the Office**, and Senior Editor of **Office Computing Report** and of **Network Monitor**. Judith holds a B.A. in English and an M.S. in Science Communication from Boston University.

**INFORMATION SYSTEM TECHNOLOGY CONFERENCE**

MAY 18-19, 1988

# APPENDICES

## NEW BRUNSWICK GOVERNMENT INFORMATION TECHNOLOGY CONFERENCE

May 18-19, 1988

**AGENDA**

Wednesday, May 18, 1988

08:00 REGISTRATION

08:45 INTRODUCTION TO THE CONFERENCE
by J.C. Haché, Committee Chairman

09:00 TECHNOLOGY STRATEGY OVERVIEW
by Jerrie Fowler, I. S. D.
Gerald Henry, B. O. M.

09:30 EXECUTIVE SPONSOR COMMENTARY
by Tim Andrew, Acting Chairman, Cabinet Secretariat
William K. Morrissey, Secretary of Board of Management
Max Lewis, Deputy Minister, Supply and Services

10:30 COFFEE BREAK

10:45 INFORMATION SYSTEMS DIVISION TECHNOLOGY UPDATES
by Bob Ellis, moderator

DEMOS TO SENIOR EXECUTIVES
Salons A and B

12:00 LUNCH

13:15 DEPARTMENTAL COMMUNICATION NETWORK
by Stuart Oulton - DOL

14:30 INFORMATION PROCESSING AT N.B. POWER
by Dennis Savoie, V.P., Distribution/Operations
and David Reid, Manager, Computer Services

15:30 COFFEE BREAK

OPEN DEMOS - Salons A and B

16:30 SOCIAL HOUR

## CONFÉRENCE SUR LA TECHNOLOGIE INFORMATIQUE DU GOUVERNEMENT DU NOUVEAU-BRUNSWICK

les 18-19 mai 1988

**ORDRE DU JOUR**

le mercredi 18 mai 1988

08:00 INSCRIPTIONS

08:45 INTRODUCTION À LA CONFÉRENCE
par J.-C. Haché, Président du comité

09:00 APERÇU SUR LA STRATÉGIE TECHNOLOGIQUE
par Jerrie Fowler, D. S. I.
Gerald Henry, C. de G.

09:30 OBSERVATIONS DES PARRAINS EXÉCUTIFS
par Tim Andrew, Président intérimaire Secrétariat du Cabinet
William K. Morrissey, Secrétaire du Conseil de Gestion
Max Lewis, Sous-ministre Approvisionnement et Services

10:30 PAUSE-CAFÉ

10:45 DÉVELOPMENTS TECHNOLOGIQUES DE LA D.S.I.
par Bob Ellis, modérateur

DÉMOS AUX EXÉCUTIFS SÉNIORS
Salons A et B

12:00 DÉJEUNER

13:15 RÉSEAU DE COMMUNICATION MINISTÉRIELLE
par Stuart Oulton - Travail

14:30 L'INFORMATIQUE À ÉNERGIE N.B.
par Dennis Savoie, V.P., Distribution/Opérations
et David Reid, gérant, Services Informatiques

15:30 PAUSE-CAFÉ

DÉMOS LIBRES - Salons A et B

16:30 SOCIALISATION

**NEW BRUNSWICK GOVERNMENT**
**INFORMATION TECHNOLOGY CONFERENCE**

May 18-19, 1988

**AGENDA**

Thursday, May 19, 1988

| | |
|---|---|
| 08:00 | REGISTRATION |
| 08:30 | OPENING REMARKS<br>by J.-C. Haché, Committee Chairman |
| 08:45 | OPTICAL DISK SYSTEMS AND APPLICATIONS<br>by Daryl Hunter - LRIS |
| 10:00 | INTEGRATED RADIO COMMUNICATION SYSTEM<br>by John W. Palmer - DOT |
| 10:40 | COFFEE BREAK |
| 11:00 | AUTOMATED PURCHASING SYSTEM<br>by Jerrie Fowler ISD |
| 12:00 | LUNCH |
| 13:15 | WORKPLACE SYNERGY - TECHNOLOGY AND PEOPLE<br>by Judith Hurwitz, Keynote speaker |
| 15:00 | COFFEE BREAK |
| | OPEN DEMOS - Salons A and B |

**CONFÉRENCE SUR LA TECHNOLOGIE INFORMATIQUE DU GOUVERNEMENT DU NOUVEAU-BRUNSWICK**

les 18-19 mai 1988

**ORDRE DU JOUR**

le jeudi 19 mai 1988

| | |
|---|---|
| 08:00 | INSCRIPTIONS |
| 08:30 | COMMENTAIRES D'OUVERTURE<br>par J.-C. Haché, Président du comité |
| 08:45 | SYSTÈMES ET APPLICATIONS DU DISQUE OPTIQUE<br>par Daryl Hunter - SCIF |
| 10:00 | SYSTÈME INTEGRÉ DE RADIO-COMMUNICATION<br>par John W. Palmer - Transport |
| 10:40 | PAUSE-CAFÉ |
| 11:00 | SYSTEME D'ACHATS AUTOMATISÉS<br>par Jerrie Fowler - DSI |
| 12:00 | DÉJEUNER |
| 13:15 | LA SYNERGIE - TECHNOLOGIE ET RESSOURCES HUMAINES<br>par Judith Hurwitz, Conférencière |
| 15:00 | PAUSE-CAFÉ |
| | DÉMOS LIBRES - Salons A et B |

---

Judith Hurwitz is a Senior Consultant with Patricia Seybold's Office Computing Group, Editor In Chief of **UNIX in the Office**, and Senior Editor of **Office Computing Report** and of **Network Monitor**. Judith holds a B.A. in English and an M.S. in Science Communication from Boston University.

Judith Hurwitz est Consultante sénior à l'entreprise "Patricia Seybold's Office Computing", Éditrice en Chef de **UNIX in the Office** et Éditrice sénior de **Office Computing Report** et de **Network Monitor**. Judith détient un B.A. en Langue anglaise, et une maîtrise en Science de Communication de l'université de Boston.

INFORMATION TECHNOLOGY CONFERENCE
CONFÉRENCE SUR L'INFORMATION TECHNOLOGIQUE

May 18-19, 1988 — Les 18-19 mai, 1988

## DEMOS

**SUPPLY AND SERVICES - I. S. D.**

DESKTOP PUBLISHING

Using *APPLE's Macintosh* personal computer and laser printer to prepare camera-ready material for publishing. Also, communication between the Macintosh and Supply and Services' *WANG VS* minicomputer.

VIDEOSHOW PRESENTATION GRAPHICS

Demo includes :
Overview ;
Creation of charts and projection slides; and
Projection of slides on screen.

**LABOUR**

A DEPARTMENTAL COMMUNICATIONS NETWORK
*What are the benefits ?*

A *UNIVERSAL WORKSTATION*, with laser printer, connected to the DOL's departmental communications network, including the *MAINFRAME* computing facilities and DOL regional offices.

**NATURAL RESOURCES**

INTEGRATED TEXT AND GRAPHICS

Demo will digitize a page of a map book, and will break out data into layers, i.e. roads,rivers and other features. Text and features will be added and deleted.

**OFFICE OF THE COMPTROLLER**

ONLINE FIS

To demo a microcomputer link to the Provincial *MAINFRAME* Financial Information System. *Online-FIS* is a MENU driven software application to provide departments daily access to their financial data, to enquire and print reports, and to input transactions for overnight processing.

**CD/ROM APPLICATION**

DELORME MAPPING SYSTEMS

Video screen demo of world atlas stored on COMPACT DISK Read-Only-Memory, using *VECTOR* and *RASTER-BASED* geographic databases.

## DEMOS

### HEALTH & COMMUNITY SERVICES

**PERSONEL RECRUITMENT SYSTEM**

The *Human Resources Recruitment* system maintains information on competitions, for regular and casual applications.

- Provide status information
  - by competition
  - by application ;
- Produce
  - eligibility list
  - B.O.M. reports
  - Letters to applicants
  - Statistical reports ;
- Maintain casual candidates inventory file .

**CLAIMS TRACKING SYSTEM**

The *Travel Claim Tracking* system keeps track of travel expenses within the department:

- Provides information on:
  - registered employee
  - registered travel claim ;
- Produces various reports.

**ENHANCED TOOLS FOR SIGHT AND SOUND**

Demo of *VOICE SYNTHESIZER* using an IBM PC, and, if possible, a demo of the *ENLARGED PRINT* capability.

### N. B. POWER

**INFORMATION PROCESSING**

Demonstration illustrates the employment of the latest technology in terminals used in the DISTRIBUTION OPERATION DIVISION in the *control* and *management* of all segments of their day-to-day work.

The demo is broken into :

- Service Restoration ;
- Work Planning and Scheduling ;
- Management Information ;
- Meter Reading Management.

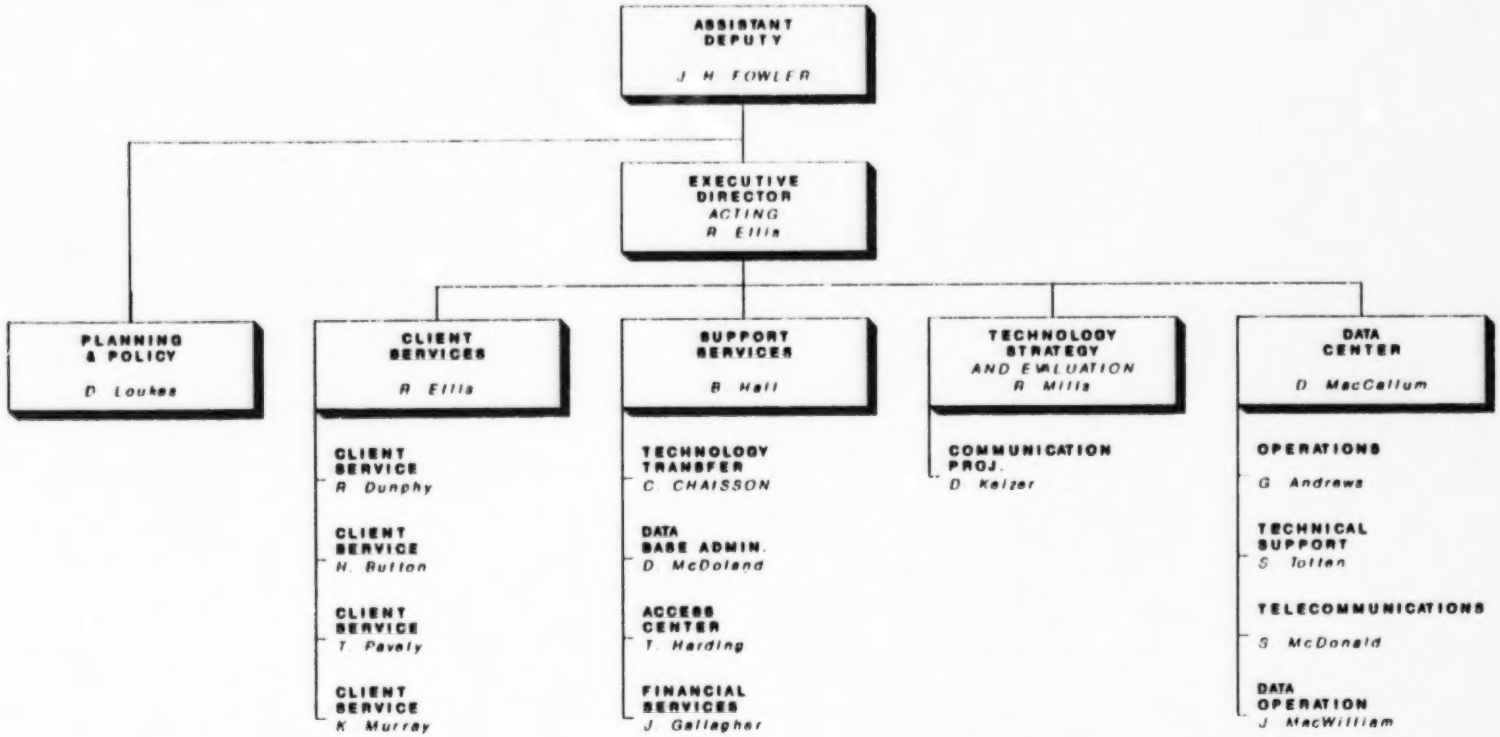
INFORMATION SYSTEM COORDINATORS
COORDINATEURS DE SYSTÈMES INFORMATIQUES
MAY 1988 - MAI 1988

| DEPARTMENT<br>MINISTÈRE | COORDINATOR<br>COORDINATEUR | 'PHONE |
|---|---|---|
| Advanced Education and training<br>Enseignement Supérieur et Formation | Bill Waugh | -2479 |
| Agriculture | Richard Ward | -3694 |
| Alcohol & Drug Dependency Commission<br>Comm. de l'Alcoholisme et Pharmacodependance | Ted Hudson | -2136 |
| Board of Management<br>Conseil de Gestion | Parker Gray | -8958 |
| Cabinet Secretariat<br>Secrétariat du Cabinet | Mike Wood | -2314 |
| Commerce and Technology<br>Commerce et Technologie | Gary Fraser | -2474 |
| Education - Éducation | Gordon Scott | -2785 |
| Executive Council<br>Bureau du Conseil Exécutif | Rick Phillips | -2286 |
| Finance | George Coy | -2708 |
| Fisheries - Pêches | Diane Nadeau-Harmon | -2251 |
| Health and Community Services<br>Santé et Services Communautaires | Jean-Claude Haché | -2279 |
| Income Assistance - Aide au Revenu | Tony Ratliffe | -2882 |
| Justice | Dianne Yates | -3693 |
| Labour - Travail | Stuart Oulton | -3976 |
| Office of the Auditor General<br>Bureau du Vérificateur Général | Yves Godbout | -2243 |
| Municipal Affairs and Environment<br>Affaires Municipales et Environnement | Bill Morrison<br>William Ayer | -2658<br>-2669 |
| Natural Resources and Energy<br>Ressources Naturelles et Énergie | Lyn Fairweather | -5598 |
| Office of the Premier<br>Cabinet du Premier Ministre | Rick Phillips | -2286 |

INFORMATION SYSTEM COORDINATORS
COORDINATEURS DE SYSTÈMES INFORMATIQUES
MAY 1988 - MAI 1988

| DEPARTMENT<br>MINISTÈRE | COORDINATOR<br>COORDINATEUR | 'PHONE |
|---|---|---|
| Office of the Comptroller<br>Bureau du Contrôleur | Pat Doherty | -2250 |
| Occupational Health & Safety Commission<br>Comm. de l'Hygiène et Sécurité au Travail | Edward Lenarczyk | -2467 |
| Regional Development Corporation<br>Conseil d'Aménagement Régional | Gordon Gilman | -2277 |
| Supply and Services<br>Approvisionnement et Services | Marie-Ange Levesque | -3707 |
| Tourism, Recreation and Heritage<br>Tourisme, Récréation et Patrimoine | Dean Mundee | -2070 |
| Transportation - Transport | Emilia Sousa | -2990 |

# INFORMATION SYSTEMS DIVISION




MAY 1, 1988

INFORMATION SYSTEMS TECHNOLOGY CONFERENCE

FREDERICTON INN — MAY 18-19, 1988

## LIST OF CLIENT REPRESENTATIVES

| PROJECT LEADER | DEPARTMENTS THEY SERVE |
|---|---|
| Donna Clark | Income Assistance |
| Dick Slipp | Office of the Comptroller<br>Board of Management<br>Executive Council<br>General Government<br>Legislative Assembly<br>Office of the Auditor General<br>Premier's Office<br>Cabinet Secretariat |
| Jean Lee | Advanced Education and Training |
| Muhammad Hanif | Justice<br>Education<br>Office of the Comptroller ( payrolls )<br>Maritime Higher Education Commission<br>N. B. Higher Education Commission |
| Matt Rickard | Health and Community Services<br>Alcohol and Drug Dependency Commission |
| Mike Hennessey | Transportation |
| Richard Thomas | Municipal Affairs and Environment<br>Finance |
| David Cowperthwaite | Agriculture |
| Jim Scott | Commerce and Technology<br>Supply and Services<br>Natural Resources and Energy<br>Tourism, Recreation and Heritage<br>Fisheries<br>Labour<br>Occupatonal Health and Safety Commission<br>Regional Development Commission<br>N. B. Housing<br>N. B. Liquor Corporation<br>Liquor Licensing Board<br>Land Registration Information Service<br>Non-government Users |
| Diane Nadeau | Human Resources Information System ( B.of M. ) |
| George Phillips | Special Projects |

INFORMATION TECHNOLOGY CONFERENCE
CONFÉRENCE SUR L'INFORMATION TECHNOLOGIQUE

May 18-19, 1988 — Les 18-19 mai, 1988

MENU

*HOT AND COLD BUFFETS* — *BUFFETS CHAUDS ET FROIDS*

*Wednesday - mercredi*

COLE SLAW - Rolls

SALADS - Potato - Macaroni
Tossed - Bean

DECORATIVE COLD CUTS

Vegetable of the day

Oven roasted potatoes

HOT DISHES - Chef's Choice

DESSERT - Tea and Coffee

SALADE DE CHOU - Petits pains

SALADES - Aux patates - Au macaroni
Verte - Aux fèves

VIANDES FROIDES VARIÉES

Légume du jour

Pommes de terre au four

PLATS CHAUDS - au choix du chef

DESSERT - Thé et café

---

*Thursday - jeudi*

COLE SLAW - Rolls

SALADS - Potato - Macaroni
Tossed - Bean

DECORATIVE COLD CUTS

Vegetable of the day

Oven roasted potatoes

CHINESE DISHES - Chef's Choice

DESSERT - Tea and Coffee

SALADE DE CHOU - Petits pains

SALADES - Aux patates - Au macaroni
Verte - Aux fèves

VIANDES FROIDES VARIÉES

Légume du jour

Pommes de terre au four

METS CHINOIS - au choix du chef

DESSERT - Thé et café

# INFORMATION TECHNOLOGY CONFERENCE
# CONFÉRENCE SUR L'INFORMATION TECHNOLOGIQUE

May 18-19, 1988 — Les 18-19 mai, 1988

## QUESTIONNAIRE

We would appreciate your feedback on the captioned conference. Your input will help the next planning committee make future conferences even more useful to you.

Please rate the topics on a scale from 1 to 9 : from *NOT USEFUL* to *VERY USEFUL*.

Thank you for taking the time.

Vos observations sur la conférence aideraient les prochains organisateurs à mieux planifier les conférences futures. Nous vous serions gré de nous les adresser.

Veuillez, s'il-vous-plait, évaluer les sujets sur une échelle de 1 à 9 : de *PEU UTILE* à *TRÈS UTILE*

Merci de votre temps.

**Wednesday, May 18 / le mercredi 18 mai.**

| | **TOPICS / SUJETS** | **VOTE** |
|---|---|---|
| a) | Technology Strategy Update<br>Mise-à-jour sur la stratégie technologique | _____ |
| b) | The Changing Role of I.S.D.<br>Le rôle changeant de la D.S.I. | _____ |
| c) | I.S.D. Technology Update<br>Mise-à-jour sur la technologie à la D.S.I. | _____ |
| d) | Open demos to Executives<br>Démos libres aux exécutifs | _____ |
| e) | Communication Network, DOL<br>Réseau de communication, DDT | _____ |
| f) | Data Processing at NB POWER<br>L'Informatique à Énergie NB | _____ |
| g) | Open demos ( Topics / time allowed )<br>Démos libres ( sujets / temps alloué ) | _____ |

**Please return to** : André Gauthier, I. S. D., 613 Centennial Bldg.
**S.v.p. Retourner à :** André Gauthier, D. S. I., 613 Édifice du Centennaire.

INFORMATION TECHNOLOGY CONFERENCE
CONFÉRENCE SUR L'INFORMATION TECHNOLOGIQUE

May 18-19,1988 — Les 18-19 mai, 1988

## QUESTIONNAIRE

**Thursday, May 19 / le jeudi 19 mai, 1988.**

| | TOPICS / SUJETS | VOTE |
|---|---|---|
| a) | Optical Disc Systems and Applications - LRIS<br>Systèmes et applications du disque optique - FCIS | _____ |
| b) | Integrated Radio Communication System - DOT<br>Système intégré de radio-communaication - DDT | _____ |
| c) | Automated Purchasing System - S & S<br>Système d'achats automatisés - A & S | _____ |
| e) | Judith Hurwitz - Keynote speaker<br>- Conférencière invitée | _____ |
| f) | Open demos ( Topics and time allowed )<br>Démos libres ( Sujets et temps alloué ) | _____ |

COMMENTS / COMMENTAIRES :

_____

_____

_____

_____

_____

_____

_____

_____

**Please return to** : André Gauthier, I. S. D., 613 Centennial Bldg.
**S.v.p. Retourner à** : André Gauthier, D. S. I., 613 Édifice du Centennaire.